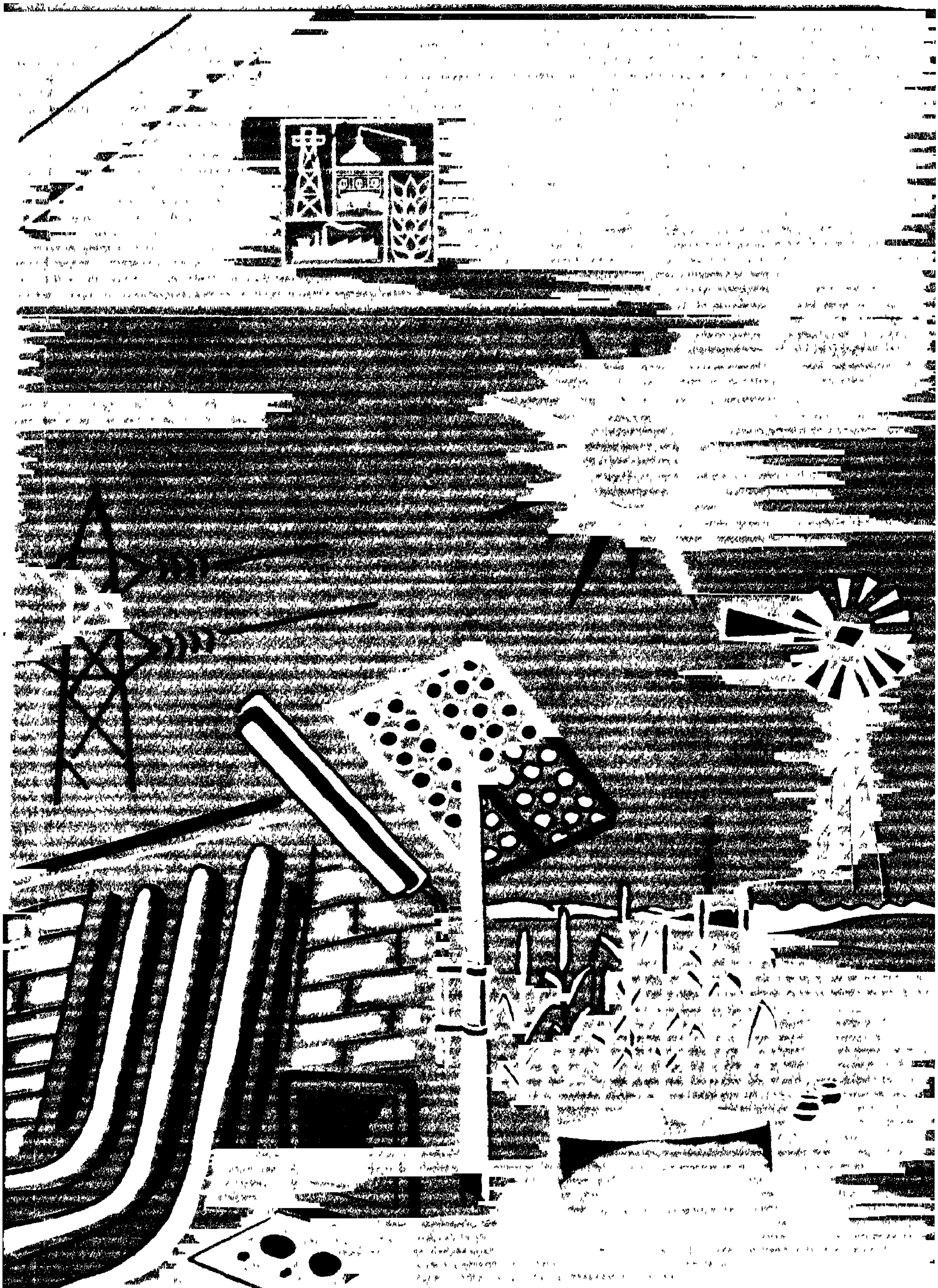


EDITORIAL

Our Natural Ally

MAN'S fabulous journey from the Stone age to the Space age, though very long and arduous, is indeed an incredibly big leap forward. Energy in its various forms has been his natural ally in accomplishing this stupendous feat.

Today life is unthinkable without energy. Mankind's very existence depends upon it. Not only all the comforts of modern life, but also the necessities are not possible without energy. It is a must for development.

Like other developing countries, India too needs sufficient energy to attain the desired degree of economic development. Though tremendous progress has been made both in the production and consumption of energy since Independence, yet we lag far behind the global average. Our per capita consumption of commercial energy is about one-eighth of the world average. Even among the Asian countries India's position is not quite enviable. This is the state of affairs today despite the fact that concrete steps were taken to produce more energy as early as the First Plan. In the Eighth Plan too, the investment in all segments of the energy sector will be at a higher scale as compared to the earlier Plans.

So, a major task before the country presently is to step up generation of power for meeting our essential requirements.

There is another dimension to this problem, that of environment. The various modes employed for development of energy in conventional form whether thermal, hydel or nuclear, pose environmental problems in their own ways. This is particularly true of fossil fuels like coal and oil, which in experts' opinion are contributing to the ecological imbalance and environmental degradation. In recent times, environmentalists have been expressing their reservations about some major projects, such as the Tehri Dam, Sardar Sarovar etc.

In view of the need for preserving the environment, non-conventional sources of energy have assumed significance. Solar energy, wind energy and energy produced through bio-mass and micro hydel projects is pollution free and poses no environmental problem. It is rightly presumed that energy produced through non-conventional means can meet our future needs to a considerable extent, if more sincere efforts are made in this direction. At the moment, however, this sector is in its infancy.

Equally important is conservation of energy. It is felt that wastage of energy is quite high in our country. This aspect too deserves attention just as the need to develop efficient technologies for production, supply and use of energy. No doubt there are constraints, but with determined efforts much can be accomplished. □

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ENERGY

Energy Scenario And The Eighth Plan

Prof. S.Z. Qasim

Stressing the need for augmenting energy production and maximising energy conservation, the author says that all the projects connected with these two aspects must be implemented at the earliest. Also, intensive efforts should be made to promote non-conventional sources of energy for rural development.

PERHAPS after food, energy is the most important component for economic development in a country and for improving the quality of life of the people. One of the indices of the measurement of prosperity in a country, which is often being used, is the per capita energy consumption. This means that both energy production and energy utilisation are the indicaters of a country's progress. No industrial development or even large scale food production, water supply, textile manufacture or construction of buildings are possible without adequate supply of energy. Therefore, one of the most important tasks of the planning process is to ensure that there is a sharp increase in the production of energy and its effective utilisation. The development of energy source is highly capital intensive and large investments are required for meeting the demands of energy for the different consuming sectors. As a result, the energy sector outlays in the Seventh and Eighth Plans are about 30% or approximately one-third of the total Plan outlays. In spite of such large investments, there is a growing shortage of energy in all sectors of our economy.

Energy Production

Of the total commercial energy produced in the form of power or electricity, about 69% comes from coal or thermal power, 25% from hydel power, 2% from nuclear power, about 4% from diesel and gas and less than 1% from non-conventional sources (solar, wind, biogas, mini-hydel etc). The other large source of energy production is petroleum and its products which run our entire transport sector (rail, road and air), agriculture sector (tube wells, pumping systems, tractors, post harvest technologies etc.) and the domestic and household sector (kerosene for lighting, cooking etc). However, besides the commercial energy sources noted above, nearly 50% of the total requirement of energy in the country, particularly in the entire rural area, and in significant sections of the urban areas, is met by wood, agricultural waste and animal dung. Thus, it is clear that in most of the Indian villages for cooking and for keeping warm during the winter months and for several other domestic needs, wood and agriculture by-products continue to remain the largest source of energy in the country.

Environmental Implications

Among the conventional sources of energy production, there is not even one source which

is free from environmental implications. Thermal power plants, despite all safeguards and modifications that have been introduced from time to time, still have a lot of problems connected with the transportation of coal and its consumption due to emission of gases leading to air pollution. Similarly, the hydroelectric power generation is associated with displacement and resettlement of a large human population from the site of a hydel plant to other places. This leads to a considerable human problem, often exploited by political activists leading to considerable delay in the implementation of the project and escalation of its cost.

> **The development of energy source is highly capital intensive. The energy sector outlays in the Seventh and Eighth Plans are about 30% or approximately one-third of the total plan outlays. In spite of such large investments, there is a growing shortage of energy in all sectors of our economy.**

Similarly, the problems associated with the nuclear power generation are also well-known. Despite the fact that considerable advancements have been made in the safety and precaution of nuclear power production, several well publicised accidents which have occurred in different parts of the world have given a lot of fear in the minds of general public regarding the radiation hazards.

Similarly, the burning of petroleum and its products, have well-debated environmental problems, particularly air pollution. Even in the non-commercial sector, the burning of wood or agricultural by-products or kerosene has its own implications with the environment. The only pollution-free sources of energy production come from the non-conventional sectors such as solar, wind, tidal, ocean waves etc., which are renewable. Many of these are still in the pilot stage and need a lot of R&D efforts to make them popular and widespread.

Energy In Eighth Plan

Since the beginning of the planning era, there has been considerable increase in the production of various energy forms in India, as is evident from table 1.

As can be seen from the table, there has been a marked progressive rise in all forms of energy every ten years, but during the last ten to twelve years there has been a very sharp increase and the energy production during this period has almost doubled. The increase in the natural gas has been particularly spectacular.

> **[illegible] of the energy requirement of the country, particularly in the entire rural areas and in significant portions of the urban areas, is met by wood, agricultural waste and animal dung.**

Corresponding with the energy production, the investments in the energy sector during the Seventh and Eighth Plans are given in table 2.

As can be seen from the table, the investment in almost all the sectors is expected to be doubled. Even if we achieve the target somewhere near what has been prescribed for the Eighth Plan, there will still remain a considerable shortfall in the energy consumption sector. The energy scenario for the Eighth

Table 1

Trends in the production of primary commercial energy

Energy Form	Unit	Production 1950-51	1960-61	[illegible]	1980-81	1991-92
Coal	Million Tonnes	33	55.67	[illegible]	114.01	229.26
Lignite	"	—	0.05	[illegible]	4.80	15.81
Crude oil	"	0.26	0.45	[illegible]	10.51	30.34
Natural Gas	MCM	—	—	[illegible]	2358	18280
Hydro Power	Bkwh	2.52	7.84	[illegible]	[illegible]	72.80
Nuclear Power	Bkwh	—	—	[illegible]	3.00	5.50

Table 2

Plan investments in the Energy Sector (Rs. crore)

	Seventh Plan	Eighth Plan
1. Electricity	37845.[illegible]	79589
2. Oil & Natural Gas	16025.[illegible]	24033
3. Coal & Lignite	7105.[illegible]	10507
Total	60975.[illegible]	114089

Plan has been indicated in table 3. It is evident from it that by the terminal year of the Eighth Plan, which is 1996-97, the increase would be between 20 to 30% in most of the sectors. A very significant increase is expected in the production of natural gas. However, as compared to the rate of energy consumption, there will be a substantial shortfall in the energy production and as a resource it will continue to remain in shortage.

Consumption Pattern

There are four main energy consuming sectors, namely, industry, transport, household and agriculture. Of these, the maximum energy consumption is by the industry followed by transport, household and agriculture. The share of each of these sector for the years 1990-91 and 1996-97 are given in table 4. During the last year of the Plan, industry and agriculture are expected to record a fall in the power consumption whereas transport and household sectors will record an increase.

The only pollution-free sources of energy production come from the non-conventional sectors such as solar, wind, tidal, ocean waves etc, which are renewable. Many of these are still in the pilot stage and need a lot of R&D efforts to make them popular and widespread.

From the year 1990-91 till the end of the Eighth Plan (1996-97) the relative shares of the four sectors in energy consumption are indicated in table 5. All sectors will record a substantial increase in electricity and oil and gas consumption. The transport and household sector will record a substantial increase in oil and gas consumption whereas agriculture will record a decrease in oil and gas and electricity consumption will increase in agriculture sector.

From the energy scenario presented above, it is clear that from the First Plan to the Seventh Plan, there has been a phenomenal increase in both energy production and energy consumption. Despite such an increase in the commercial energy, the per capita energy consumption in India is still one of the lowest in the world. It recorded 123.5 KGOE during 1990-91. However, if non-commercial energy consumption is also included, the per capita consumption goes up to 265.4 KGOE. The per capita electricity consumption in India is presently

Table 3

Electricity, Petroleum, Natural Gas and Coal Scenario

	Unit	1991-92	1996-97
ELECTRICITY			
Generating Capacity	MW	69082	99620
Share of Thermal Cap.	%	69.64	68.52
Share of Hydel Cap.	%	27.78	28.58
Generation	BKWH	311.21	448.00
Consumption	BKWH	226.34	335.84
T&D Losses	%	23.00	21.00
CRUDE OIL			
Production	MMT	30.34	50.00
Net Imports	MMT	24.00	13.32
Refining Capacity	MMT	51 85	65.00
Crude Throughput	MMT	51 42	63.32
PETROLEUM PRODUCTS			
Refinery Production	MMT	49.15	61.57
Net Imports	MMT	6.74	19 62
Consumption	MMT	56.66	81.19
NATURAL GAS			
Gross Production	MCM	18280	30180
Flaring	MCM	5314	2415
Consumption	MCM	12966	27765
COAL			
Production	MMT	229 26	308.00
Net Imports	MMT	5 98	2.00
Consumption	MMT	228 83	310.00
LIGNITE			
Production	MMT	15.81	22.3

Table 4

Shares of four main sectors in commercial energy consumption during two years

Sector	1990-91 %	1996-97 %
Industry	51.0	46.3
Transport	23.3	25.4
Household	13.8	15.8
Agriculture	9.6	8.8
Others	2.3	3.7
Total	100.00	100.00

Table 5

Relative shares of different forms of commercial energy in various sectors (%)

Sector	Year	Coal	Oil/Gas	Electricity
Industry	1990-91	69.96	13.1	17.3
	1996-97	69.2	11.6	19.2
Transport	1990-91	9.6	88.9	1.5
	1996-97	4.0	94.7	1.3
Household	1990-91	3.9	77.1	19.0
	1996-97	7.3	68.9	23.8
Agriculture	1990-91	—	57.1	42.9
	1996-97	—	50.2	49.8
Others	1990-91	—	29.2	70.8
	1996-97	—	48.2	51.8

around 250' Kwh. Table 6 shows the per capita consumption of energy in India in relation to some developed countries in the world. The highest per capita consumption is in Canada followed by USA and other countries. A figure of 253 Kwh is really very low for India.

Brief details of energy production of each sector during the Eighth Plan are as follows :

Electricity Sector

The installed generating capacity in the electricity sector was about 69,000 MW at the beginning of the Eighth Plan. A target of commissioning 30538 MW of additional generating capacity has been set for the Eighth Plan which will bring the total installed capacity to around 100,000 MW at the end of the Plan period. Achievement of a target of this magnitude will involve a number of problems and issues which need to be tackled. The present financial health of the generating plants is in a bad shape and many of them have large operating deficits. Apart from the operational deficiencies, the tariff structure prevailing in most of the States and Union Territories continues to be irrational.

Petroleum Sector

The demand for refined petroleum products in the country has been increasing during the last few years and in fact the rate of growth achieved in the petroleum products consumption was higher as compared to the target set for the Seventh Plan. The unrestricted demand for petroleum products in the terminal year of the Eighth Plan i.e. 1996-97 is estimated at 81.2 million tonnes. The increase in the production of domestic crude oil will not be matching with that of the increase in demand for petroleum products thereby necessitating increasing level of imports both in terms of crude oil and petroleum products. As compared to a level of 29.4 million tonnes of the imports of petroleum products in 1991-92, the country will need an import of 31.2 million tonnes of petroleum products in 1996-97. This is a difficult proposition in view of the large requirement of foreign exchange resources and this will make the economy of the country far more vulnerable due to the uncertainty in the external oil markets.

There are four main energy consuming sectors, namely, industry, transport, household and agriculture. Of these, the maximum energy consumption is by the industry followed by transport, household and agriculture.

Coal Sector

Coal is our major primary source of energy and will continue to remain so in the long run. The production of coal is targeted to increase from around 229 million tonnes in 1991-92 to 308 million tonnes during the Eighth Plan. The major users of coal are power and steel and other sectors like cement, fertilisers and small industries.

R&D In Energy Sector

Some of problems of the energy sector are discussed below with a view to prioritising the R&D effort needed.

Table 6

Per capita energy consumption in India vis-a-vis other countries

Country	Commercial Energy Consumption (KGOE)	Electricity Consumption (Kwh)
USA*	5355	9348
Canada*	5897	14363
France*	2444	4515
Japan*	2075	4908
South Korea**	1648	2206
India**	123	253

Source : International Energy Agency
* For 1985
** For 1990

Power

The installed generating capacity in the power utilities has gone up from 1710 MW in 1950, the beginning of the Planning era, to nearly 64,000 MW by 1989-90, which is the terminal year of the Seventh Plan. The total generation has increased from 5.1 billion Kwh to over 245 billion kwh during the same period.

Such an expansion in the power supply system would not have been possible without the major strides in terms of technological upgradation. The unit size of the generating plants

From the First Plan to the Seventh Plan, there has been a phenomenal increase in both energy production and energy consumption. Despite such an increase in the commercial energy, the per capita energy consumption in India is still one of the lowest in the world.

has now gone upto 500 MW and electricity is being produced in both AC and DC modes at voltages ranging upto 400 KV. With the physical resources for generating the electricity unevenly distributed in the country, it has become necessary to set up long distance high voltage DC and AC transmission lines across the borders of different States and regions. This has resulted in the creation of complex systems of regional power grids calling for a high degree of sophistication in both communication and control mechanisms.

Keeping the various factors in view, the problem areas towards which R&D effort in the power sector needs to be directed are as follows :

1. There is a need to reduce the cost of supply of electricity to the consumers.
2. There is a need to utilise the wastes (e.g. fly ash, waste heat etc.) from power stations to improve their economics.
3. There is a need to reduce the energy losses in generation, transmission, distribution and end-use of electricity to conserve resources and reduce the costs.
4. The power system should comply with the environmental standards formulated by the Ministry of Environment.
5. There is a need to manage the demand optimally to reduce the overall cost of power system operations.

Coal

As far as the coal production is concerned, the major users are going to be the electricity industry for non-coking coal and the steel industry for coking coal. As the coal deposits are largely concentrated in the eastern and central parts of India, large quantities of coal will have to be moved in the coming years to meet the growing demand in other parts of the country. Since the Indian coal has high ash content and is of low calorific value, its transportation is already causing a severe strain on the mechanism of transport and the problem is going to become more and more acute in the future. From this point of view, it is necessary to explore the ways and means of evolving alternative modes of transportation of coal (e.g. slurry transportation by pipeline) so that the burden on transportation gets reduced. There is also a need to evolve indigenous technologies for improving the quality of coal and also in the improvement in their end-use efficiencies.

Petroleum

As against an annual demand of 58 million metric tonnes (MMT) of petroleum products today, the indigenous availability of crude oil is of the order of only 30-32 MMT.

The increase in the production of domestic crude oil will not be matching with that of the increase in demand for petroleum products thereby necessitating increasing level of imports both in terms of crude oil and petroleum products. This will make the economy of the country far more vulnerable due to the uncertainty in the external oil markets.

While all efforts are being made to maximise the indigenous production through emphasis on exploration and development of oil and gas within the country, the gap between domestic demand and indigenous availability is likely to widen in the coming years. This has serious foreign exchange implications for the economy. The thrust areas in the petroleum sector are, therefore, oil exploration and development on the one hand and containment of demand for petroleum products through conservation and substitution on the other. Development of oil and gas fields, both onshore and offshore, involves heavy investments of foreign exchange and it is important that R&D efforts are directed towards indigenisation of technology in this area.

Non-conventional Sources

This is going to be the most important sector for all developing countries in the future. During the last few years, our country has shown marked improvements in the use of non-conventional sources of energy. Biogas plants

have been increasing rapidly in numbers. Similarly, widespread use of solar energy and wind energy is being made. Practically every State has a programme for utilising the non-conventional sources of energy. Some States like Gujarat and Maharashtra have done much better than the others but on the whole the programme is catching up all over the country.

The importance of non-conventional sources of energy in the context of rural development in India can not be over emphasised. In some areas biogas is progressively replacing wood and agricultural waste, as a source of energy for cooking and lighting. Similarly, solar energy for cooking and heating is also becoming popular, while wind energy is being used for water pumping and for other purposes.

Non-conventional energy sources are important in view of the overall scarcity of fossil fuels in our country, long distances and the cost of transportation of conventional fuels particularly in rural areas and for the long term sustainable development. A number of R&D, demonstration and extension programmes have been taken up. The major programmes include biogas, improved chulhas, solar thermal, solar photovoltaic, wind, biomass and micro hydel programmes. In addition, R&D work has also been taken up on alternative fuels, battery powered vehicles, hydrogen, geo-thermal and chemical sources of energy.

The achievements in the major programmes upto August 1992 are as follows :

(i)	Biogas plant	16.16	lakh
(ii)	Improved Chulhas	127	lakh
(iii)	Domestic solar water heating systems	10292	Nos.
(iv)	Industrial solar water heating systems	4907	Nos.
(v)	Solar cookers	2.27	lakh
(vi)	Photovoltaic street lights	28,887	Nos.
(vii)	Photovoltaic domestic lighting units	11,430	Nos.
(viii)	Wind pumps	2,922	Nos.
(ix)	Wind farms	42.97	MW
(x)	Mini micro hydel	86.44	MW
(xi)	Biomass gasifier/stirling engines	1040	Nos.

The average cost of the various NRSE devices is given below :

1. Biogas Plant (4m³ capacity)	Rs. 10,000
2. Improved Chulhas	Rs. 100
3. Solar Water Heating System	Rs. 10,000/m² of collector area
4. Solar Photovoltaic	Rs. 225/peak watt
5. Wind Power	Rs. 2.5-3.0 crore/MW
6. Micro Hydel	Rs. 40,000-80,000/KW

Presently, non-conventional energy sources and technologies need high rates of subsidy. The subsidy levels will have to be lowered through technology upgradation and commercialisation so as to reduce the cost through economy of scale.

The technologies for these sources have to be disseminated on a large scale for meeting the energy needs of the large section of population, especially in the rural areas. The dissemination of these technologies cannot be achieved through Government efforts alone. Therefore, the beneficiaries of these programmes, which are the rural communities, would have to be involved in intensifying these programmes.

As noted earlier, most of the States have set-up energy development agencies for the promotion and development of NRSE programmes. But, these agencies, except for a select few, have been functioning mostly as intermediaries between manufacturers and users in the marketing of NRSE devices, instead of playing their envisaged role as technology development and technical assistance agencies. Their scientific and technical orientation needs to be strengthened.

Conclusion

In view of the large financial resources required for meeting the costs of development programme in the power sector, it is of utmost importance to maximise the utilization of assets already created. Keeping this in view, a renovation and modernisation programme for revitalising not only the ageing thermal and hydel units but also the transmission and distribution (T&D) systems must be pursued with further vigour. The T&D losses, which consume about one-fourth of the total power generation must be brought down by taking appropriate measures. Another important aspect of the development of power sector is the restoration of the hydel-thermal mix to 40 : 60 in order to optimize the performance of both the sectors. The share of hydro power in the total generating capacity has been declining since the early sixties.

Similarly, the oil demand will have to be managed in such a manner that the level of the import of crude oil and petroleum products is restricted. This will call for an improvement in the efficiency of the use of petroleum products. In the gas sector, the losses in flaring up will have to be reduced further. In the coal sector, we need better management in the supply and movement of coal and we should maximise the use of indigenous coking coal in steel production through quality improvement. The energy sector, being perhaps one of the most important sectors, we must minimise delays in the implementation of all projects connected with energy production and energy conservation. At the same time, we should implement the programme on the use of non-conventional sources of energy, particularly in rural areas of the country. ☐

The author is Member, Planning Commission.

ENERGY

New Technologies For Meeting Energy Requirements

Dr. S.K. Joshi

The future in the field of energy is full of challenges demanding lot of ingenuity, says the author. As the commercial exploitation of our vast potential for renewable sources of energy is at present minimal, we must intensify our R&D efforts in this direction. The future strategy for energy should be a flexible and rational one, he opines.

In today's world for any development, energy is a prerequisite. The oil price hikes in 1973 and 1979 forced the attention of developed countries towards energy conservation measures and possibility of exploiting alternative energy sources. Iraq-Iran war and recent Gulf war further brought into sharper focus the energy predicament. The outlook for energy in India in the nineties and beyond is a matter of concern. In India, out of the total consumption of energy, 60% is met through commercial sources based on coal, oil and natural gas and hydel and 40% through non commercial sources like firewood, cow dung etc. The share of renewable/non-conventional source of energy is yet to become perceptible.

The energy supply mix for the coming century between conventional (coal, natural gas, hydel, nuclear etc) and non-conventional (solar, wind, geothermal, biomass etc.) will depend on the magnitude of the demand growth for global energy, changing targets, environmental concern and the technologies to meet them. Among the fossil fuels, coal, oil and natural gas may last for a few more decades. The non-fossil and renewables, on the other hand, will come to play more important role in the future global energy mix.

Resources

The resources of fossil non-fossil fuels with respect to India and World as of 1987 are shown in Table 1. The figures include proven reserves, recoverable reserves and estimated additional resources. Reserves of all kinds of coal in seams exceeding 0.5 metres in thickness and occurring within a depth of 1200 metres were of the order of 196 billion tonnes (estimates in Jan.' 92). The balance recoverable reserve of oil and gas (estimates in Jan.' 91) are 806 million tonnes and 730 billion cubic metres respectively. The country has uranium resources to meet life-time requirement of the first stage of nuclear power development programme of 10,000 MW. Apart from this there are large deposits of thorium available in the country.

Non-conventional sources of energy have got tremendous potential. According to available statistical data, our country is supposed to accumulate every year 300 million tonnes of agro residues, out of which only a small quantity gets utilised as direct fuel. At a conservative assessment wind power potential in the country is around 20,000 MW. The total wave power potential from ocean energy along India's 1600 km. coastal line is 40,000 MW.

Status

The total energy requirement in conventional fuel equivalent and per capita requirement for the world and for a few selected countries including India are given in Table II. The per capita energy consumption in Canada is the highest, varying from 413 to 441 gigajoules. The per capita energy requirement in India is varying between 11 to 13 gigajoules. The production figures for the primary sources of commercial energy namely coal, oil, natural gas, hydro power and nuclear power in India from 1970-71 to 1991-92 are given in Table III. There is a steady growth for all the sources of energy. The share of primary sources of energy in India from 1970-71 to 1991-92 is given in Table IV. The share of coal is highest around 60%, followed by oil around 30% and hydro 3-4%.

Coal

Bihar and Madhya Pradesh are the largest coal producing

> **Two Problems are essentially associated with the quality of coal. First, by their very nature, Indian coal reserves are of inferior grade. The second problem is the inclusion of rubble and mud into coal.**

States in the country, producing more than 60% of the total production. The power sector so far is the largest consumer of coal. The other major consumers are : steel, cement, railways, fertilisers and the household sector (soft coal). More than 80% of coal produced is consumed by these sectors.

While the coal production increased impressively in the post nationalisation era, the coal quality declined. Two problems are essentially associated with the quality of coal. First, by their very nature, Indian coal reserves are of inferior grade and the share of relatively low quality coal in the total coal produced has increased sharply over the years. The second problem is the inclusion of rubble and mud into coal.

Considerable indigenous R&D work has been carried out in the country on coal mining and coal utilisation. The coking coal washeries for the integrated steel plants in the country were based on the knowhow developed by the Central Fuel Research Institute, Dhanbad. A low temperature carbonisation plant was set up at Singareni in Andhra Pradesh based on the process developed by the Indian Institute of Chemical Technology, Hyderabad.

Oil

The consumption pattern of petroleum products can be seen in the table below.

The transport sector has remained the largest user of oil. Another important user is the household sector.

Renewable Sources

All possible efforts are being made to ensure that renewable energy programmes, specially those relating to biogas and solar energy are accorded high priority in our Plans. India is blessed with plenty of sunshine. The daily average solar energy available in the country varies from 5 to 7 KWh per sq. metre. Solar energy can be directly converted into heat energy through solar thermal devices and systems. A large number of commercial enterprises have taken up the manufacture, distribution, installation and maintenance work of these devices. Approximately 10,000 domestic solar water heating systems, 5000 industrial/commercial water heating systems, 2.25 lakh solar cookers, 10,000 solar stills and 200 solar huts have so far been installed in the country. Various incentives have been provided by the Government for promoting use of these devices.

> **The wind energy is ready to take its place along with conventional resources as a clean source of energy, specially in coastal areas. Because of the promotional policy measures initiated by the states like Tamil Nadu, Gujarat, Karnataka and Andhra Pradesh the private sector participation in the wind power programme is likely to receive a boost.**

Solar photovoltaic (PV) technology is a convenient way of generating electricity directly from sunlight in an environmentally clean manner. Photovoltaic devices when made out of single crystalline silicon wafer turn out to be expensive compared to

Petroleum Products

(Million Tonnes)

	1970-71	1985-86	1990-91
Domestic Production	24.12	39.88	48.57
Net imports (gross import minus export)	7.25	1.91	6.01
Consumption of petroleum products	30.90	40.87	55.04

present day available energies because of high energy and material cost involved in growing single crystals of silicon.

World wide photovoltaic module production was estimated to have increased from 5 MW to 55 MW. Efforts made have narrowed down the gap between the present cost per watt of PV power and the conventional electricity. Module costs have come down to a fourth of 1981 levels and to a tenth of the levels that prevailed in the mid-seventies through steady improvements. Photovoltaic systems are being used for small loads such as lighting, railway signalling, water pumping and solar communications. Over 40,000 PV systems are deployed in almost all the States and Union Territories in India. The Central Electronics Ltd. has pioneered the development and commercial production of solar cells, modules and systems. Although the crystalline silicon PV technology has been the mainstay of the programme, amorphous silicon technology has been receiving attention during the last 5 years.

> **Geothermal manifestations are widespread in India in the form of 340 hot spring localities. Only a few direct utilization schemes have been launched in Puga, Chhumuthang, Manikaran and Bakreshwar.**

The **wind energy** is ready to take its place alongwith conventional resources as a clean source of energy specially in coastal areas. At present about 43 MW aggregate wind power capacity has been established in the country including 6.5 MW in the private sector. Because of the promotional policy measures initiated by the States like Tamil Nadu, Gujarat, Karnataka and Andhra Pradesh the private sector participation in the wind power programme is likely to receive a boost.

Geothermal energy is the exploitation of heat energy of earth within the upper 10 KM. of the earth's crust. Geothermal energy can be processed for generation of power where the geothermal fluid has a temperature of about 130°C. Geothermal manifestations are widespread in India in the form of 340 hot spring localities. Only a few direct utilization schemes have been launched by various agencies. These are in Puga, Chhumuthang, Manikaran and Bakreshwar.

Ocean energy is another area which is potentially an important renewable source of energy. India's first power plant producing electricity from sea wave is commissioned at Vizhinjam to provide a maximum of 150 MW and an average of 75 KW for 10 months of the year.

Biomass offers a convenient, natural route to meet the growing energy needs of the society. Some of the possible technologies and routes for using biomass are :

- Thermal energy recovery from waste and residues (cogeneration).
- Energy recovery from agricultural, industrial and urban wastes through biomethanation.
- Thermo-chemical conversion using gasification and pyrolysis.

The programmes on **storage batteries** is for development of storage systems needed for intermittent energy sources like solar and wind energies and for battery driven vehicles. Amongst all the commercial batteries currently available, lead acid battery seems attractive.

Nuclear Power

India currently has an installed capacity of 1465 MW from seven nuclear power plants, two each at Tarapur, Rajasthan and Kalpakkam and a 235 MW unit at Narora. The first stage of the Indian Nuclear Power Programme is based on construction of a series of 220 MW and 500 MW Pressurised Heavy Water Reactor units (PHWR). The first PHWR station of 220 MW series was constructed at Rawatbhata (Rajasthan). Subsequently two atomic power stations, each consisting of two 220 MW units, were set up at Kalpakkam (Tamil Nadu) and Narora (Uttar Pradesh). The first unit of the country's fourth twin unit PHWR station set up at Kakrapar, near Surat has just attained criticality.

> **Though the availability and cost of various forms of energy have a direct bearing on the economic and social development of a country, the choice of a type or a type mix depends on a number of factors. Conventional resources being negligible in the Ladakh area, geothermal energy may be an answer. Similarly, in the Andaman & Nicobar Islands ocean energy should prove a viable source of energy.**

Hydel Power

Hydel Power Projects continue to become more and more attractive with the passage of time. Most of the present day hydel generation is through large scale plants which though attractive require high initial investments and have long gestation period. Small hydro power plants which generate electricity in small scale from a few Kw to MW range are now being made attractive through

andardisation. Energy from lero-hydel is probably the oldest ad yet the most reliable of all newable energy sources.

echnologies

Technologies play a crucial le to meet the future energy mands. The status of various chnologies in our country in ference to development/ ilisation in energy sector is scussed in brief in the following ragraphs :

oal

India is endowed with undant reserves of coal likely to st for 200 years at the present te of consumption. Unfortu- ately nearly 71% of our non- king coal reserves are of inferior ade. The ash content in the als meant for power generation at present 40-45% which is ely to increase in near future. terioration in the quality of coal fects the performance of thermal wer plants and coal based dustries, and leads to greater amage to environment. For

> **The reserves of oil and natural gas are limited in our country, whereas the reserves of coal are abundant. Therefore coal needs to be utilised as a primary energy source. There is no option but to develop indigenous technologies to utilise this resource efficiently and cleanly.**

cample, the conventional alverised coal fired thermal wer plants after decades of velopment and operation has tained the peak efficiency of only -40% and the pollution caused them in terms of fly ash, alphur and nitrous oxides nissions etc. is becoming acceptable in the environmentally conscious society. Introduction of new technologies will become essential. The following efficient, and clean technologies could become alternative technologies for power generation with high ash coals.

- Beneficiation of non-coking coals is meant for power generation to improve the performance and downtime of the thermal power plants and to reduce the pollution due to particulate matter.
- Fluidised bed combustion/circulating fluidised bed combustion is for the efficient utilisation of low grade coals and washery rejects. In this process, the nitrous oxides (NOx) emission is low and sulphur emissions can be controlled.
- Micronised coal combustion is for small scale operations upto 30 MW boiler capacity. The flame produced by the micronised coal combustion is similar in all respects to oil and gas flames with high emissivity, good controllability and rapid response to load change.
- Coal gasification is meant for the production of low calorific value gas (1000–1300 Kcal/Nm3) and medium calorific value gas (2500-3000 Kcal/Nm3) from high ash coals for domestic and industrial use and for power generation. Coal gasification based Integrated Gasification Combined Cycle (IGCC) system of power generation with high ash coals is more efficient and environmentally benign compared to the pulverised coal fired thermal power generation.

A feasibility study carried out by CSIR had shown that fluidised bed gasification based IGCC is techno-economically a suitable method of power generation with high ash coals.

- High concentration coal water slurry containing 70% coal and 30% water is intended to replace the furnace oil in industrial boilers and the pulverised coal in the boilers of thermal power plants. Oil can be conserved and efficiency and performance of the boilers can be improved with the use of coal water slurry.

> **We have to emphasise the energy conservation strategies as much as finding new energy sources. Conservation would mean more efficient use of energy as well as changing our habits in such a way that we use less energy.**

- Slagging Coal Combustion is for the generation of ash free flue gases which can be utilised in boilers for steam production.
- Molten carbonate fuel cells for conversion of energy in coal gas to electric power, based on electrochemical process and static equipment. This is a pollution free technology.

Many of the clean coal technologies mentioned above like IGCC are already developed abroad upto commercial scale but they are suitable for coals having low ash content (upto 10% ash). These technologies cannot be applied directly to high ash coals (40-45% ash) available in India.

Adaptation and indigenous R&D is required to suit our coals and conditions.

Oil

Indian crudes are of low sulphur content but have high wax content, particularly the Bombay High crude. The imported crudes processed in Indian refineries have relatively high sulphur content but low wax content.

New technologies likely to be developed in this sector are governed by several considerations like : the shift to unleaded gasoline, the changing crude oil quality, the changing petroleum products quality, drive for cheaper feedstocks and environmental considerations. Kerosene and diesel are two important petroleum products for which demand is increasing day by day. To meet the increased demand for diesel, heavy oil cracking is being resorted to. Cracked products, generally have poor qualities.

The Indian Institute of Petroleum, Dehradun, a constituent laboratory of CSIR, is developing improved hydrocracking technology required to boost the middle distillate production. Another useful and new programme is on petro-crops. Energy crops grown on arid land hold promise in future as a source of liquid fuels. Extensive screening of laticifierous and resinous species has resulted in the identification of potential petro crops and their conversion to liquid fuels.

Energy from micro-hydel is probably the oldest and yet the most reliable of all renewable energy sources.

Natural Gas

The application of natural gas in fertilizer and petrochemical industries as well as in power generation in combined cycle have been established. Conversion of natural gas to liquid fuels is also possible. Recently there is a move to promote Compressed Natural Gas (CNG) as an alternative fuel for transport sector.

TABLE 1

Fossil Fuel, Nuclear and Hydraulic Resources - 1987
(Quantities in million metric tons except where indicated)

	World	India
I. Bituminous Coal/ Anthracite		
(a) Proved reserves in Place	1630686	129154
(b) Proved reserves recoverable	402752	—
(c) Estimated additional resources	3625169	110177
II. Sub-bituminous Coal/Lignite		
(a) Proved reserves in Place	736241	2100
(b) Proved reserves recoverable	396152	1900
(c) Estimated additional resources	4367678	3932
III. Peat		
(a) Proved reserves in Place	419145	—
(b) Proved reserves recoverable	12108	—
(c) Estimated additional resources	231436	—
IV Crude oil and NGL Reserves	122848	657
V. Oil shale (Proved reserves in Place)	9726	—
VI. Bituminous Sands (Proved recoverable reserves)	41360	—
VII. Natural Gas, Billion Cubic Metre (Proved recoverable reserves)	106480	500
VIII. Uranium, Metric Tons		
(a) Reasonably assured	2355945	45540
(b) Estimated additional resources	1338100	16610
IX. Hydraulic Resources Gross theoretical Capability (Terajoules)	105046329	2160000

Source · 1989. Energy Statistics Year Book, United Nations, New York, 1991

Nuclear Energy

Self-reliance is basically the guiding principle. The choice of reactor system in our case has been made after careful evaluation of uranium and thorium resource position and the need to achieve a nuclear power programme to meet our energy demand.

Solar Thermal

Low grade solar thermal technologies for water heating, air heating, desalination, timber seasoning, drying, cooking etc. have been commercialised as a result of indigenous R&D efforts. In order to make these technologies more efficient and cost effective, further efforts to develop new materials and improved designs based on field feed back are being attempted.

Low temperature solar thermal systems have been installed in all the States of the country. The Solar Energy Centre established at Gurgaon is engaged in research, pilot plant studies and testing and standardisation in order to promote the solar energy based systems. The Central Salt and Marine Chemicals Research Institute (CSMCRI) has used solar energy for desalination of brackish water to potable water. The National Physical Laboratory (NPL) has been one of the early centres for solar energy research which developed a number of solar thermal devices starting from a successful demonstration of solar cookers in 1950s.

Photovoltaics

Efforts made in this country during the last two decades have

Table II

Total Energy Requirement in Conventional Fuel Equivalent
(Quantities in Thousand terajoules and gigajoules Per Capita)

Country	Year	Solids	Liquids	Gases	Primary Electricity	Traditional Fuels	(Requirement) Total	Per Capita
World	1986	90061	108477	61464	43277	19022	321960	65
	1987	92792	110662	64665	45451	19427	332637	66
	1988	96358	114921	67773	47868	19539	346103	68
	1989	97066	116524	70143	48263	19633	351375	68
United States	1986	628	4564	1787	3571	2766	13290	49
	1987	651	4551	1903	3774	2886	13724	49
	1988	689	4713	2051	3901	2845	14163	50
	1989	734	4708	2086	4088	2884	14465	50
Canada	1986	992	2915	2159	4461	67	10593	413
	1987	1091	3026	2202	4565	67	10950	423
	1988	1173	3189	2424	4586	67	11439	439
	1989	1171	3334	2605	4422	67	11599	441
India	1986	4062	1568	210	707	2441	8988	11
	1987	4339	1625	235	633	2530	9362	12
	1988	4698	1729	260	767	2603	10057	12
	1989	5042	1910	316	857	2644	10769	13
Japan	1986	3054	7416	1649	3070	7	15196	123
	1987	3007	7393	1677	3240	7	15324	126
	1988	3319	8008	1750	3310	7	16394	134
	1989	3319	8312	1887	3383	8	16909	137
Germany (FR)	1986	3295	4569	1724	1651	37	11279	185
	1987	3138	4385	1909	1804	37	11276	185
	1988	3116	4372	1872	1964	37	11366	186
	1989	3097	4000	1963	1991	38	11089	181
USSR (Former)	1986	14780	15292	20187	4417	838	55578	199
	1987	14870	15770	21467	4758	878	57808	205
	1988	16716	16253	22626	5200	838	61696	217
	1989	14510	16049	22971	5089	782	59466	208

Source : 1989, Energy Statistics Year Book, United Nations, New York, 1991

Table III

Supply of Primary Sources of Commercial Energy : 1970-71 to 1991-92

	Lignite (million tonnes)	Coal			Oil			Natural Gas	Hydro Power	Nuclear Power
		Production (Million tonnes)	Net Imports	Supply	Production (Million tonnes)	Net Imports	Supply	(Men. cubic metres)	(Men. Kwh)	
1970-71	3.39	72.95	Neg	72.95	6 82	11.68	18.51	1445	25248	2417
1975-76	3.03	99.68	Neg	99.68	8.45	13.62	22.07	2368	33302	2626
1980-81	5.11	113[illegible]	0.31	114.22	10.51	16.25	26.76	2358	46542	3001
1985-86	8.05	154.20	[illegible]	156.65	30.17	14.62	44.78	8134	50933	4985
1990-91	13.77	211.73*	5.88	217.61	33.03	20.70	53.73	17890	71535	6244
1991-92	15.00*	229.28	[illegible]	235.28	30.34	24.03	54.37	18400*	72557	5585

Source : Current Energy Scene in India, May 92
Centre for Monitoring Indian Economy (CMIE)
Bomay-400 025
* : CMIE Estimates

TABLE IV

Share of Primary Sources of Energy : 1970-71 to 1991-92

(Per cent)

	Lignite	Coal	Oil	Natural Gas	Hydro	Nuclear
1970-71	2.80	60.10	31.10	2.10	3.50	0.30
1975-76	1.90	63.10	28.50	2.60	3.60	0.30
1980-81	2.70	61.20	29.30	2.20	4.20	0.30
1985-86	2.90	56.00	32.70	5.10	3.10	0.30
1990-91	3.60	56.40	28.40	8.10	3.20	0.30
1991-92	3.70	57.90	27.30	7.90	3.00	0.20

Source · Current Energy Scene in India, May 1992 Centre for Monitoring Indian Economy (CMIE) Bombay—400 025.

resulted in the establishment of a research base and indigenous production capabilities for high purity silicon, silicon solar cells, modules and systems. Institutions in the country are engaged in research and technology development of amorphous silicon solar cells required for power generation at cheaper rates.

The Central Electronics Ltd. (CEL) has a production plant for single crystal Si PV cells. The Ministry of Non-Conventional Energy Sources (MNES) is supporting a few selected projects to promote solar photovoltaic research. There has been a joint project of CEL and NPL, New Delhi to set up an experimental facility to cast multicrystalline silicon ingots of 40-60 kg size and to develop a production-worthy process for making photovoltaic grade multicrystalline silicon.

Bio Energy

Indigenous gasification technology packages for gasification of biomass wastes have already been developed and are available for decentralised power generation. CSIR laboratories have done R&D work on conversion of effluents and wastes from different industries into energy. The Centre for Biochemcials at Delhi is working on conversion of apple pomace into hydrogen and methane. The National Environmental Engineering Research Institute, Nagpur has studied a process for development of methane gas from distillery effluents.

Wind Energy

An extensive wind survey programme comprising wind mapping, wind monitoring and complex terrain projects is under implementation in 22 States/UTs. Design and development efforts on battery chargers of capacity upto 4 KW have been undertaken. BHEL has designed and developed wind generators. The National Aeronautical Laboratory, Bangalore has developed windmills primarily for water pumping. The windmill is of modular type and can pump 15000 litres per hour corresponding to wind speed of 18 Km/hr.

Ocean Energy

India's first power plant producing electricity from sea waves is now commissioned 45 metres in front of the breakwater off the Vizhinjam fishing harbour in Kerala. The IIT, Madras, the Harbour Engineering Department of Kerala, Centre for Earth Sciences Studies in Thiruvananthapuram and three private companies are involved in the project, which is expected to provide a maximum of 150 MW and an average of 75 MW for 10 months of the year. The potential of Ocean Thermal Energy Conversion in Andaman & Nicobar Islands is high.

Magneto Hydro Dynamics

The Magneto Hydro Dynamics (MHD) power generation is a direct energy conversion method where thermal energy is converted into electrical energy instead of thermal-mechanical-electrical as in conventional power plant. The MHD power generation is capable of achieving net efficiencies around 50%. The tests conducted so far have not identified any technical barrier to the development of MHD except the financial constraints.

Geothermal Energy

India's most promising geothermal field is in Puga Valley in Ladakh. There are a number of geothermal wells drilled in the valley. As Ladakh has no energy resources like coal, petroleum etc. harnessing of geothermal energy has been engaging the attention of scientists from RRL, Jammu who have successfully used this energy for extraction and refining of borax, sulphur and salt in the valley, besides demonstrating its use for spase heating. Another on going project for effective utilisation of geothermal energy is a 5 KW pilot power plant at Manikaran using F-113 as working fluid. The plant has been successfully test run at full load of 5 KW under simulated conditions at NAL and installed at Manikaran.

Electro-Chemical Energy

The Central Electro-chemical Research Institute (CECRI) at Karaikudi is working in the area of development of electro-chemical power as an alternative energy source. The important battery systems presently under development are : lithium cells for defence and electronic applications; sodium-sulphur cells for electric vehicles and photovoltaic energy storage and distribution; nickel-iron and nickel-cadmium batteries for a variety of other applications.

Conclusion

Though the availability and cost of various forms of energy have a direct bearing on the economic and social development of a country, the choice of a type or a type mix depends on a number of factors. For example conventional resources being negligible in the Ladakh area, geothermal energy may be an answer. Similarly, in the Andaman & Nicobar Islands ocean energy should prove a viable source of energy. Since we have limited uranium reserves, we shall have to depend on reactor systems which could make efficient use of plutonium generated in our reactors and also concentrate on use of thorium.

The reserves of oil and natural gas are limited in our country, whereas the reserves of coal are abundant. Therefore coal needs to be utilised as a primary energy source. Unfortunately major reserves of coal are of inferior grade. There is no option but to develop indigenous technologies to utilise this resource efficiently and cleanly. India cannot depend on foreign technologies for utilisation of our coals, since their technologies are suitable for low ash coals available in those countries. The import of prime coking coal can be minimised by substituting it with solvent refined coal produced form non-coking coal. With the ash content in coals touching 50%, the country may have to go in for alternative, efficient and clean technologies like IGCC and fluidised bed combustion for power generation with high ash coals. This needs to be given high priority. Technologies for conversion of coal to oil and fertilisers will be required in the near future when oil resources get exhausted or the prices become prohibitive. It is therefore imperative to be ready with these technologies for implementation at the appropriate stage.

Import of crude oil is a major drain in the foreign exchange earnings of our country upsetting the balance of payment position. One of the strategies is to increase the indigenous production which has its limitations and constraints. The R&D efforts are required matching with the specificities of the available indigenous crudes so that they are optimally utilized. Other strategies are to substitute oil with coal, natural gas and renewable/ alternative sources of energy to the extent feasible.

Though the country has vast potential for renewable sources of energy, their commercial exploitation at present is minimal The R&D for the utilisation o renewable energy sources shoul be intensified and organised Utilisation of solar energy throug photovoltaics is being persued but the higher initial capital cos of SPV cells continues to be a constraint. The R&D efforts are t be directed to attaining highe conversion efficiency. India wi have to depend more on solar an wind energy in future to mee energy demands.

We would have to use fossi fuels more cleanly and mor efficiently to minimiz environmental damage. Cleane technologies would have to com which should lessen the build-u of greenhouse gases. Th reduction in environmental impac of energy generation woul demand new breakthroughs i doing more with less. The futur in the field of energy is full c challenges demanding a lot c ingenuity.

We should also have t emphasize the energ conservation strategies as muc as finding new energy source Conservation would mean mor efficient use of energy as well a changing our habits in such a wa that we use less energy. Th future strategy for energy shoul be a flexible and rational or considering available energ sources, conservation, enviror mental protection and needs c economic growth.

The author is Director Genera CSIR & Secretary, Deptt. of Scientific Industrial Research.

ENERGY SAVED IS ENERGY PRODUCED

Meeting Our Requirements Through Solar Energy

Dr. G.D. Sootha

The importance of solar energy cannot be over-emphasised particularly in view of the fact that fossil fuels and other conventional sources are not free from environmental problems. Energy sources which have least pollution, safety and security snags and are universally available have the best chance of large scale utilisation in future. Despite the high initial investment and other limitations, use of solar energy to meet our ever increasing energy demand seems to be the only answer, the author feels.

ENERGY has become the most vital element for the development and survival of our society and as such in the absence of appropriate supply of energy the aspirations of the human beings cannot be met. The linkage between energy and prosperity is reflected in the life style of developed and developing countries. The annual per capita energy consumption in developed countries range from 5 to 11 KW whereas in the developing countries it is between 1 to 1.5 KW only, the global average being about 2 KW. This energy is used in the form of electrical energy, thermal energy, light, mechanical energy, chemical energy etc.

The present day energy requirements are met from mainly fossil fuels like coal, oil and gas, fuel wood, energy of the flowing waters, waste materials like cow dung cakes, farm waste etc. The fossil fuels are remains of plant material burried underground for thousands of years. Their reserves are, therefore, not unlimited. A recent global study conducted by Shell company has indicated that the proven and economically recoverable oil reserves will last only for 42 years at todays rate of extraction assuming consumption levels remaining unchanged, gas reserves for about 62 years and coal reserves for about 180 years. With the passage of time the global population is bound to increase which in turn will demand more energy for survival and the above findings of Shell company will not remain valid. It is expected that some additional reserves of fossil fuels may be located in future. However, their recovery is not going to be easy due to remoteness of these locations. The availability of fuel wood has already become alarmingly precarious, the forest cover in the country is hardly 17-19 per cent whereas for best land to forest covered ratio it should not have been less than 33 per cent. The load on forests will further escalate due to increase in population.

Various Problems

Organic materials such as coal, oil, gas, fuel wood, cow dung cakes etc. when burnt produce many pollutant materials like waste heat, ash, fly ash, oxides of carbon, sulphur and nitrogen and

other particulate materials. It is estimated that the energy industry alone contributes global release of over 20 billion tonne of Carbon dioxide (CO_2) annually along with other pollutants. This CO_2 is responsible for the greenhouse or hothouse effect contributing to the atmospheric increase in temperature. The acid rain in some countries is due to the presence of CO_2, SO_2, NO_x etc gases in the atmosphere.

Energy generated through the fission and fusion of atoms is viewed as one of the most important energy generation process for the future. However, the safe disposal of radioactive fission products worldwide still remains a problematic area besides the fear of accidents etc.

Thus there are three main problems which need immediate solution and these are directly linked to the survival of human beings. These are (i) to provide more energy to meet the requirements of our increasing population, (ii) to reduce environmental pollution and (iii) to reduce safety and security risks associated with the use of nuclear energy. Perhaps for the time being all the energy sources available to mankind will have to be harnessed and utilised. For future energy sources which have least pollution, safety and security problems and are available all over the world have the best chance of large scale utilisation. It is, therefore, high time that such energy sources are developed and introduced in the marketplace. Time is running out. Use of solar energy to meet our increasing energy demand seems to be the only answer.

Energy generated through the fission and fusion of atoms is viewed as one of the most important energy generation processes for the future. However, the safe disposal of radioactive fission products worldwide still remains a problematic area besides the fear of accidents.

Solar Energy

As the sun happens to be the source of life on our planet earth, it also happens to be the source of all energies (except geo-thermal and nuclear) available to mankind. The sun is a huge nuclear reactor where hydrogen gas is continuously burning at high temperature and pressure and generating energy. A small fraction of the energy radiated by the sun into the space is also received on the surface of the earth in the form of radiant energy. This energy is received in three main spectral regions, namely (i) ultraviolet, (ii) visible light and (iii) infrared or heat radiation, the energy content being distributed as about 2%, 51% and 47% respectively. From the energy content point of view the ultraviolet radiation have no significance since most of the energy is concentrated in the other two regions.

The planet earth is covered by a blanket of a mixture of several gases, water vapours, particulate materials etc. However, this blanket is upto a certain height only beyond which there is vacuum. The solar insolation above the atmosphere and falling on a plane surface facing the sun is 1.35 KW per metre square. This is known as solar constant. Some portion of the solar energy coming towards the earth is either absorbed by the atmosphere or reflected back into the space. The amount of solar insolation available on the surface of the earth is therefore reduced, the maximum amount being in the range of 1 to 1.1. KW/m^2. This amount also does not remain same during the whole day. As the earth is inclined at an angle of 23.5° to its axis, it is moving round the sun and also spins around its own axis, the amount of solar energy available changes with time of the day and season of the year. It also depends upon the sky conditions. In spite of these variations the amount of solar energy received on the surface of our country is about 5 x 10^{15} KWH/year which is an enormous amount of energy. Although the plant, animal, human life is due to the availability of solar radiation, the solar radiation can be used to generate energy in different forms for our day to day use also. The most important routes of solar energy utilisation are through the conversion of solar energy into heat energy and directly converting the solar radiant energy into electrical energy utilising the process of photovoltaic conversion. While talking about the conversion of solar energy into useful energy it may be noted that in most of the devices energy up to the wavelength of 2.0mm is utilised. Thus in most of these technologies visible portion of the solar spectrum is utilised. In the case of photovoltaic conversion of solar energy into electrical energy the spectral region of utilisation is further narrowed, it is from about 0.8 to 2.0μm only. The energy available in the remaining parts of the solar spectrum is either not utilised or wasted in the form of

The sun is a huge nuclear reactor where hydrogen gas is continuously burning at high temperature and pressure and generating energy. A small fraction of the energy radiated by the sun into the space is also received on the surface of the earth in the form of radiant energy.

heat. This is because of the fact that in photovoltaic conversion processes electrons are excited from the valance band to the conduction band with the help of photons and these excitations take place in quantas with definite energy only.

Photothermal Conversion

Solar radiant energy is converted into thermal or heat energy with the help of solar collectors. A solar collector is nothing but a solar energy absorber made of highly heat conducting materials like copper, aluminium, steel etc. These are coated with black coloured materials like black paint, oxides of certain materials such as chromium, copper, cobalt etc. These black coating materials should have high absorption in the visible region of the solar spectrum, low emission at high temperatures in the infra-red region, high stability, low cost of production etc. The temperature to be attained depends, apart from the opto-thermal properties of these receivers the concentration of solar radiation falling on them. The collectors could be in the form of a flat surface or concentrators of different shapes like parabolic trough, parabolic dish, heliostates, fresnel lense etc. The other components of a flat plate solar collector are insulating materials to reduce heat losses from the absorbing surfaces, front with highly transparent glazings to avoid contact of the absorbers and the surrounding air, heat transfer materials like water, oil, air or any other fluid to be heated, outer box to enclose the absorber and insulating material and support to front glazing etc. In the case of concentrators the reflecting mirrors with appropriate support structure and tracking mechanisms are the main components apart from the solar receiver.

The most important routes of solar energy utilisation are through the conversion of solar energy into heat energy and directly converting the solar radiant energy into electrical energy utilising the process of photovoltaic conversion.

Solar Cooker

Heat generated from solar radiant energy can be used for cooking food. Two types of solar cookers have been developed and are being used in the country. These are simple box type cookers and cooker involving concentrators. In box type solar cookers Indian chapaties cannot be prepared neither deep frying operations can be done. These have always to be kept in the open where sun light is available during the cooking time. However, in the case of concentrating type of cookers the reflected energy could be brought inside the kitchen and hence cooking can be done from inside the building. Box type solar cookers have become quite known to the people and their use is increasing day by day.

Solar Water Heating

Heating of water with solar energy is one of the most useful applications of solar energy. Solar water heaters are now being used in the domestic, commercial and industrial sectors of our society. Hot water systems in the temperature range of 60° to over 80°C and of individual capacity of 100 litres per day to 2,40,000 litres per day have been installed. The solar hot water technology not only saves conventional energy, it also helps in improving the environmental degradation due to CO_2, SO_2, NO_x, particulate emissions wherever fossil fuels are used for this purpose. The energy and maintenance savings are quite substantial and the initial investment is recovered in 5 to 7 years time depending upon the energy used otherwise and without subsidy from the Government.

Solar Air Heating

Hot air is used for many applications like drying of food grains, vegetables, fruits, fish, chemicals etc., heating of buildings during winter months, seasoning of wood and many more applications. Solar air heaters are now being manufactured in the country for these applications. Apart from saving conventional fuels/energy solar air heating is found to improve the quality of the product to be dried since the product during drying process is not exposed to the surrounding air and is thus saved from continuous contamination.

Solar Desalination

Impure/brackish water could be purified by utilising the process of thermal evaporation and condensation. The device used to purify impure water using solar energy is known as "Solar Still". Different designs of Solar Stills have been developed which include simple basin type with single or double slope, multi stage stills, flash evaporation stills etc. Although the distilled water obtained from such stills is highly pure it cannot be used for medical applications since in most of these systems the temperature remains below 100°C. A single slopped Solar Still gives about 3 to 4 litres of pure water per day per square metre of collector area on a clear sunny day. This water is not tasty for direct drinking and some essential salts are therefore need to be added to the water. It is also good for use in batteries etc. and also in science laboratories, in colleges and universities. In other words except for medical applications the solar distilled water can be used for any other application.

Solar Refrigeration

In broader sense refrigeration means lowering the temperature by external means. Thus refrigeration includes cooling of space including cold storages. Solar energy can be used to produce refrigeration effect by utilising the absorption and absorption principles. Several combination of materials can be used for this purpose. These include aqua-ammonia, Libr-Water activated carbon-ethanol, etc. The solar heat is utilised to evaporate the working fluids like ammonia, water, ethanole etc. from their mixtures. The fluids after condensation are then used to create the refrigeration effect. The Libr-Water system is suitable for space cooling applications since in this case water is the working fluid and hence it cannot be cooled below about 4°C. Other fluids can be used to create

> **Greenhouse technology is used in many cold countries for growing vegetables, flowers, certain type of fruits and also for rearing poultry animals or birds. These have been found to be very useful in hilly areas of Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh etc.**

temperatures below zero degree celcious also. The solar cooling devices can have many applications in remote rural areas of the country where electrical energy is not available and thus help in improving the social status of the rural people.

Power Generation

It is possible to generate electrical power through thermal route in the range of a few KW to hundreds of megawatts. Steam Cycle, Organic Rankin Cycle or Sterling Cycle can be used for this purpose. Several solar thermal power plants as R&D facility have been installed in different countries including India. These are based on parabolic trough concentrators in conjunction with steam turbines, parabolic dish concentrators in conjunction with stirling engine, steam engine, solar tower in conjunction with steam turbine, solar pond in conjunction with Organic Rankin Cylce, flat plate collectors in conjunction with Organic Rankin Cycle etc. The parabolic trough concentrators in conjunction with steam turbine have proved to be commercially viable. Solar power plants of individual capacity of 14 MW, 30 MW and 80 MW and of total capacity of over 350 MW are in operation in California, USA for the last several years. Other technologies are still in the experimental cum demonstration stage. The Solar Tower concept is expected to be cost effective in the capacity range of 100 MW and above while the Stirling Engine based systems are expected to be most suited for decentralised applications in the KW capacity range. It may be mentioned here that a 80 MW Solar Thermal Power Plant was constructed by M/S LUZ International of USA in a time period of 7 months only. In India it could perhaps be constructed within a time of less than two years. A similar coal based power plant may take 4 to 5 years for completion.

Space Conditioning

Solar energy can be used to create comfort conditions within residential, commercial and industrial buildings by making use of passive and active concepts and daylighting concept. Introduction of these concepts into building designs not only saves conventional energy consumption but also helps in improving the general environmental conditions wherever fossil fuels are used to heat the buildings during winter months. In fact in India the old buildings have been constructed keeping in view the surrounding environment, ventilation, roof height, direction of the building with respect to the movement of

> **The fossil fuels including fuel wood are depleting fast and burning of such fuels have created pollution problems. However, nature has provided unending source of energy in the form of sun.**

sun etc. However, we have drifted away from our old architectural designs while designing the new buildings and are thus responsible for the energy intensive buildings of today.

Water Pumping

Solar thermal energy can also be used to lift water from underground for drinking as well as irrigation purpose. Pumps to lift water from a depth of up to 5[illegible] metres have already been developed in the country. Simple designs of solar pumps capable of drawing water from a depth of 1[illegible] to 20 metres have also been suggested.

Greenhouse Technology

Greenhouse technology is used in many cold countries for growing vegetables, flowers, certain type of fruits and also for rearing poultry animals or birds. These have been found to be very useful in hilly areas of Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh etc. The greenhouses can also be designed for arid and semi-arid regions of the country.

Generation Of Fuels

Solar energy is also being tried to generate fuels like ethanol, hydrogen etc. Hydrogen is expected to be the fuel of coming years which can

produced by splitting water at high temperatures. It is also being used to split CO_2 into combustible gases and thus apart from producing combustible fuels reduce atmospheric pollution. Experiments are being conducted to gasify biomass and coal with the help of concentrated solar energy and generate other less polluting fuels.

Solar Energy has many medical applications also. The seven colours present in solar spectrum are used to cure the diseases.

Photovoltaic Conversion

From the electrical conduction point of view substances are generally categorised under three main categories namely highly conducting, semi-conducting and highly resistive or non-conducting. A fourth category of materials have been discovered which become highly conducting near liquid helium temperatures. Such materials are known as superconductors.

Under the category of semi-conductors there are certain materials which become conducting under exposure to visible light. Such materials are called photoconductors. Under the category of photoconductors there are certain materials which develop potential difference between two surfaces under exposure to visible light. These materials are known as photovoltaic materials. Some of the photovoltaic materials are Silicon, Germanium, Gallium-Arsonide, Cadmium-Sulphide, Indium Antimonide etc.

The photoconductive properties of such materials are related to the energy gap between the valance band and the conduction band. Since this band gap is fixed for each material, the solar radiation having the energy equal to the band gap can only be utilised to excite the electrons from the valance band to the conduction band. This energy can slightly be modified by introducing certain class of materials in small quantities into the main photovoltaic material. However, the excitation energy for such impurities will also be pre-defined and as such the quantum nature of excitation will always remain. The solar radiation having energy less than the band gap is wasted whereas for higher energy radiations the excess energy is wasted as heat energy in the material itself Because of this quantum nature of excitation the overall efficiency of converting solar radiant energy into electrical energy is not very large, the present day solar cells in India have an efficiency of 12 to 13 per cent only

> **Solar Energy has some inherent limitations. The density of solar energy is low as compared to coal, oil, gas etc. Its intensity is not constant, it changes from early in the morning to evening with a maximum around 1 to 2 p.m.**

Silicon happens to be the most abundently available photovoltaic material. It can be produced from sand For making solar electric generators or solar cells as they are commonly known the material has to be of very high purity. Apart from purity the best solar cells are obtained from single crystaline silicon. Production of high purity silicon in the crystaline form is not an easy job, it is highly sophisticated and energy intensive. However, the techniques are now commercially available and such cells are being manufactured by only a limited number of countries in the world including India.

Apart from single crystal cells of silicon solar cells of amorphous materials, polycrystalline materials, thin films, multilayered materials etc. are also now possible. The amorphous and polycrystalline solar cells are cheaper as compared to single crystal based solar cells. However, their efficiency is lesser. These can be prepared using simpler methods and require lesser amount of materials.

The solar cells in the circular or any other shape are connected in large numbers in series parallel combination to obtain the required amount of power, the individual circular cell being of diameter about 10 cms. These cells when exposed to solar radiation give direct current which can be converted into AC using inverters. Thus solar electricity generated with the help of photovoltaic solar cells can be used to operate DC as well as AC equipments.

Depending upon requirement a large number of solar cells and/or Solar panels are connected in series-parallel combination to get the required output. Thus solar cells and solar panels can be utilised to generate DC or AC power in the range of a few watts to hundreds of megawatts. This power can be utilised to operate any electrical appliances including aeroplanes, space aircrafts and spac satilliles Solar cells are being used to provide power to satellites.

Conclusion

Energy is so important that no society can flourish without proper and timely supply of the same. The fossil fuels including fuel wood are depleting fast and burning of such fuels have created pollution problems. However, nature has provided unending source of energy in the form of sun. In fact all sources of energy except nuclear and geothermal energy derive their energy from the sun. The fossil fuels are therefore termed as 'bottled solar energy". The above discussion clearly bring out that energy in different forms can be derived from the sun. However a lot more

R&D efforts are required to be put in before the dependence or fossil fuels is reduced and finally avoided. If timely action and decisions are not taken the future will definitely be dark. We have been talking a lot about the need of harnessing solar energy in the past. The time is running out of our hands and it is up to the decision makers to decide whether a well defined policy guideline is required or not for the proper development of solar energy based technologies. The initial investment is going to be high. These technologies are best suited for decentralised applications. However, in order to utilise these technologies in large numbers we will have to change our mentality and approach. A small device like solar water heater or solar street light cannot be compared with 500 MW power plant based on coal. But today this is what is happening. We will have to come out of this mentality. Let us keep our mind open without any biased opinion and then only the country as a whole can get the benefit of the vast source of energy in the form of sun.

Solar Energy has some inherent limitations. The density of solar energy is low as compared to coal, oil, gas etc. Its intensity is not constant, it changes from early in the morning to evening with a maximum around 1 to 2 p.m. It also changes with different seasons of the year and depends on the sky conditions. Since the density of solar energy is low, the space requirement for solar devices looks much more than the commercial energy based devices. However, if the total land area required to fulfil a certain requirement using solar energy is compared with fossil fuel based technologies there is hardly any difference during the life time of the product, since the fossil fuel based technologies require constant input of the fuel from different places such as mining and transportation of coal etc. The land area required for generating electrical energy through solar thermal route and through coal taking into account the land area required for coal mining, transportation etc. is almost same. Therefore it is not appropriate to compare the land area requirement for these different technologies.

The nature has never been cruel to mankind. In fact it is fetching him different types of materials and resources to fulfil the different needs of mankind.

The nature has never been cruel to mankind. In fact it is fetching him different types of materials and resources to fulfil the different needs of mankind. Solar Energy belongs to the same category.

Solar Energy also belongs to the same category. However, we may have to work hard and uncover the hidden facts of the nature to make use of abundantly available solar energy.

The development of solar technologies and their applications have been the subject of intensive investigation for at least 20 years. During this period significant amount of data and experience have been accumulated. This has resulted into a shift from technical to economic demonstration in certain areas of solar energy application. However, solar energy technologies are still in their infancy and will take time to stand on their own leges. This can be achieved only with intensive R&D efforts in the area of using solar energy for variety of applications. Theoretically it can provide energy for all the needs of mankind. The technology needs to be developed and utilised.

The Working Group of Renewable Energy Resources, Price and Constraints 1990 to 2020 of the 15th Congress of the World Energy Council has observed that:

(i) The costs for installations of renewables (which include solar energy) are usually very site specific because the resources can be extremely localised. It is therefore very difficult to generalise on the cost at which renewables will compete economically with conventional resources.

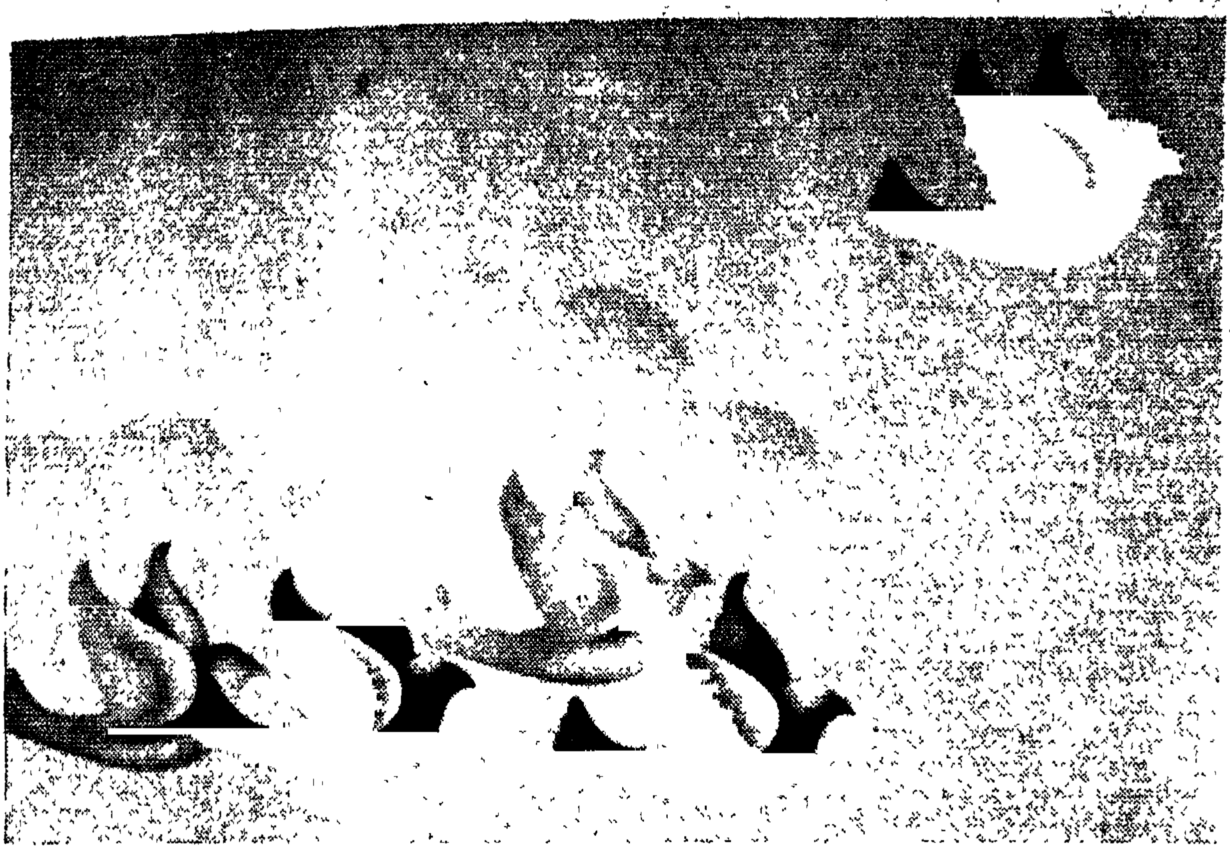
(ii) Renewable resources are by nature indigenous to the locality, and their use can ease foreign payment issues, as well as the environmental problems and transportation of fossil fuels.

(iii) Short term planning and economic decision making is a major obstacle to renewables. Many elected leaders in democratic nations are engaged by the political system to focus on goals related to the next election, and major changes of Government policy direction are common place. Within governments, specially in the developing countries, there is a need for effective coordination of sectoral plans dealing with energy, agriculture, forestry and rural development.

(iv) Renewables have potential to make a major longterm contribution to economic development by distributing economic activity over a wider area thereby slowing the migration of local people to the major cities which create extreme pressure on the local region and conditions related to many social problems.

(v) Renewable energy can reach its potential contributions only if there is a willingness to value the benefits from a global perspective. □

The author is Adviser, Ministry of Non-Conventional Energy Sources, Govt. of India.





ENERGY

Hydel Generation Problems And Prospects

G.P. Singh

Of all the methods of power generation, hydel electricity is the cheapest, cleanest and the best from the resource optimisation point of view. It is ironical that despite a huge hydel potential, we face acute energy crisis. The reason being we could not harness even 15 per cent of the available hydro potential. If we can add about 50,000 MW of hydro capacity within next 15 years, the country will be greatly benefited, says the author.

OF all the economic infrastructural inputs required for a country's development, electricity is the most important one. In fact, per capita consumption of electricity may be regarded as an index to scale the nation's progress. Increase in power generation has a cascading impact on all sectors leading to increased industrial as well as agricultural growth. Of all the methods of electricity generation hydropower is the cheapest, cleanest and the best from resource optimisation point of view. Nature has been very generous and bounteous in providing a vast hydroelectric potential to the Indian sub-continent through the great Himalayas and perennial rivers like the Indus, Ganges and Brahmaputra etc.

Latest assessment of the Central Electricity Authority (CEA) has placed the hydro potential of India at 84,000 MW at 60% load factor or 1,35,000 MW at 40% load factor which is equivalent to 600 billion units of firm energy annually.

With such a large hydel potential, India faces acute energy crisis. There is still a large gap between the demand and supply. Although the total installed generation capacity from hydro and thermal sources has increased from a meagre 1360 MW at the time of Independence to over 70,000 MW today, hydro development has not even touched 15 per cent of the available potential.

Hydro : Thermal Mix

The power industry of India has been mainly depending upon coal based steam power plants with the resultant undesirable hydro : thermal mix of 28 : 72. A poor hydro : thermal mix is not only putting pressure on exhaustion of a limited inventory of fossil fuel against utilizing a perennial energy source but is also adversely affecting the productivity of the power system in the country characterized by frequent power sheddings, fluctuations in voltage and above all poor economy of integrated power system, leaving aside the negative environmental impacts like acid rain, air pollution and so on.

Peaking power deficit is the main problem of power sector today. Hydropower projects are known for their capability of providing peaking support to the integrated power systems. Present peaking power shortages could have been eliminated had

reference been given to the evelopment of more hydropower ading to a judicious hydro : hermal mix (say 40 : 60) onducive to healthy operation of ne power supply system.

roblems

In addition to the prevailing ower deficits in various parts of ne country and also the difficult esource situation being faced by ne National Economy, there are any other problems which affect ne hydropower generation in ndia. Some of these are listed elow with possible remedial easures.

(a) Land Acquisition

Land being a State subject poses many problems for acquisition before the start of work due to involvement of multi-faceted agencies like State revenue departments, district authorities, defence and forest authorities. As hydro projects are directed towards social and economic uplift of the region, wherever they are constructed, the State Governments and other agencies involved for handing over the land should be made responsible and accountable for completing the exercise within a definite time frame. Zero date of the project should start only after making available all the land required for the project.

Although the total installed generation capacity from hydro and thermal sources has increased from a meagre 1,360 MW at the time of Independence to over 70,000 MW today, hydro development has not even touched 15% of the available potential.

(b) Environmental Aspects

It takes anywhere between 2 to 5 years to obtain Forest and Environment clearances at present. This generally becomes the main bottleneck in project approval. This needs to be streamlined for efficient and expeditious project formulation and implementation. The major problem being faced is the Catchment Area Treatment (CAT) programmes. The Ministry of Environment and Forests (MOEF) expects hydro projects to treat the entire catchment area at project's cost which is incorrect as it enhances the project cost unnecessarily and is based on a misconception that hydro projects cause catchment degradation and soil erosion. CAT should be done for project area including reservoir rim only and beyond that should not be in the purview of project erection. Also there are no clear cut guidelines or a model plan regarding restoration of project area and landscaping. There are no uniform guidelines for rehabilitation either or a definite package proposed by the MOEF which can be implemented for various projects. Sorting out all these problems on case to case basis leads to inordinate delays in project implementation.

(c) Delays in Statutory Clearances

Techno-economic clearance usually takes 4 to 6 months. In actual practice, however, CEA fixes it on priority based on various factors governing the power scenario with consequential undefined trend in this regard. After techno-economic clearance, a hydro power project has to go through a series of statutory clearances, viz.

(1) Project Execution agreement and acceptance of power sharing formula by the concerned State.
(2) Clearance from International Water Resources angle (Indus Water Treaty, Bangladesh and Nepal angles).
(3) Defence Clearance.
(4) Environmental and Forest Clearances.
(5) Public Clearance through notification under Section (29) 2 of Electricity (Supply) Act, 1948.

Present peaking power shortages could have been eliminated had preference been given to the development of more hydropower leading to a judicious hydro : thermal mix conducive to healthy operation of the power supply system.

The above clearances are quite time consuming and on top of it the project has to pass through a long bureaucratic channel of the Pre-PIB and CCEA approvals before any investment sanction is accorded. In order to save some of the valuable time of the project cycle, the Government has recently accepted Two-Stage Clearance of hydroelectric projects in the Central

sector But the concept still faces some apprehensions which will be discussed under a separate head.

(d) Construction Machinery

Of late, CWC/CEA during the techno-economic appraisal of projects have resolved that the executing agency should decide the mode of execution beforehand should not propose procurement of any construction equipment in case the works are to be done through contractors, even though the project cost remains same in both the cases. The actual mode of execution of different packages depends upon several factors, all of which cannot be foreseen. Moreover, unavailability of sophisticated equipment with the contractors, lack of motivation to purchase them in the absence of assured future business and presence of more number of low technology equipment (even repeat items) at the project with different contractors engaged in different works can definitely cause time and cost over-run to the project. Therefore, it is proposed that flexibility of the option to procure the construction equipment should be left with the executing agency in order to give it better authority, maneuverability and control in execution as otherwise it will be difficult to execute the project on committed schedule.

It takes anywhere between 2 to 5 years to obtain forest & environment clearances at present. This generally becomes the main bottleneck in project approval. This needs to be streamlined for efficient and expeditious project formulation and implementation.

(e) Contractual Problems

The major works of projects are executed through the contractors and these are inter-linked with each other. Any delay on account of one affects the overall progress of the project. Various types of problems are encountered with the contractors during the execution, such as :

(i) Labour problems in the contractor's organization.

(ii) Dispute over the contractual cost due to change in scope, cost escalation or change in the design parameters.

(iii) Delays in supplies or completion of fronts by the sub-contractors of the main contractor.

(iv) Unrealistic and unworkable rates quoted by the contractors result in cash flow problems during execution. NHPC as a principal employer has to ensure regular payments to the contractor's labour to avoid any labour problems. Contracts should have adequate incentive and penalty clauses which can be imposed on contractors in case of deviation in achievement of clearly identified milestones. This would enable the executing agencies derive the best out of the contractors during project execution.

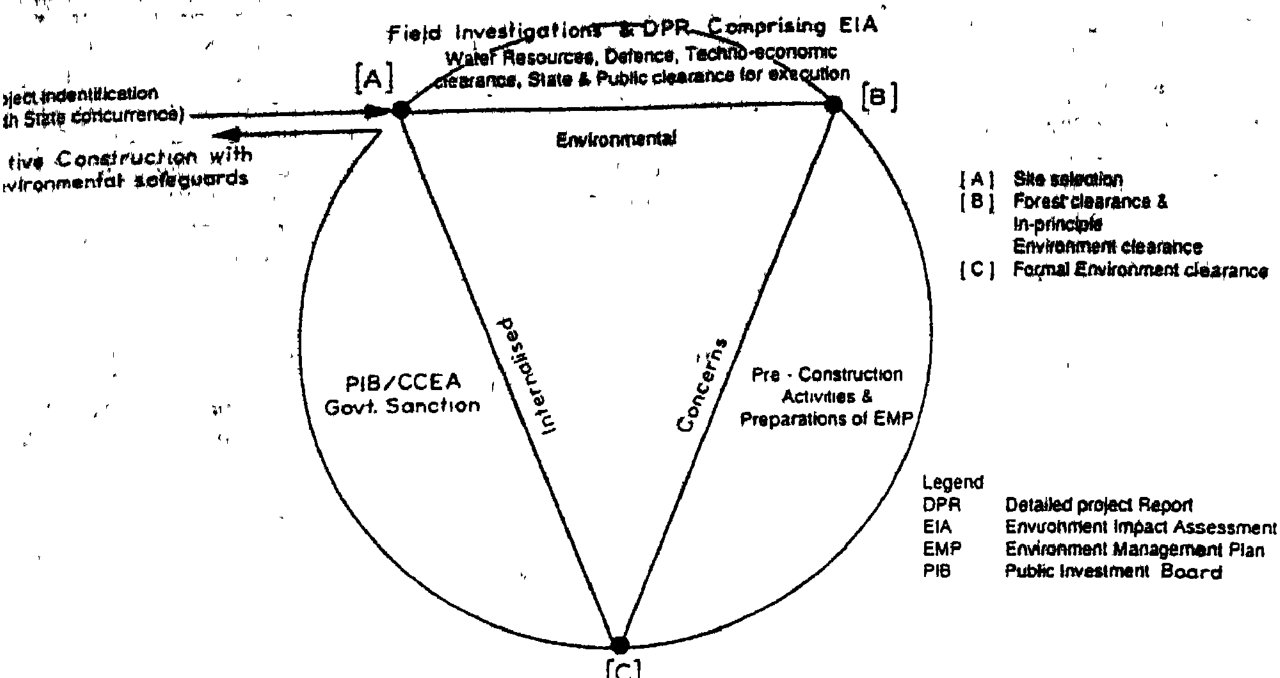
(f) Gestation Aspects

The common belief regarding longer gestation in case of hydro is perhaps because of the considerable time taken during investigation of hydroelectric projects whereas it should be considered as a separate nationwide regular planning activity. This is justified by the fact that, in case of thermal, gestation for the associated activities like exploration and development of coal mines etc. is not taken into account.

From long term considerations of national economy, environment and conservation of limited fossil energy resources, the available hydro resources need to be harnessed upto the maximum feasible extent as early as possible.

(g) Zero Date Disparity

Zero date of hydro projects need to be redefined in line with the prevailing practice in thermal sector. It should be taken as the date of award of contract for the generating plant and not the date on which the Government issues formal sanction. This would help placing hydro in the right perspective in the overall national policy frame work, removing present disparity within the power sector. This would also remove the present



Integrating E & F clearance into the project Cycle
(Hydroelectric Schemes in the Central Sector)

Exhibit - I

Financial Comparison between Prevalent and Proposed System of Project Clearance

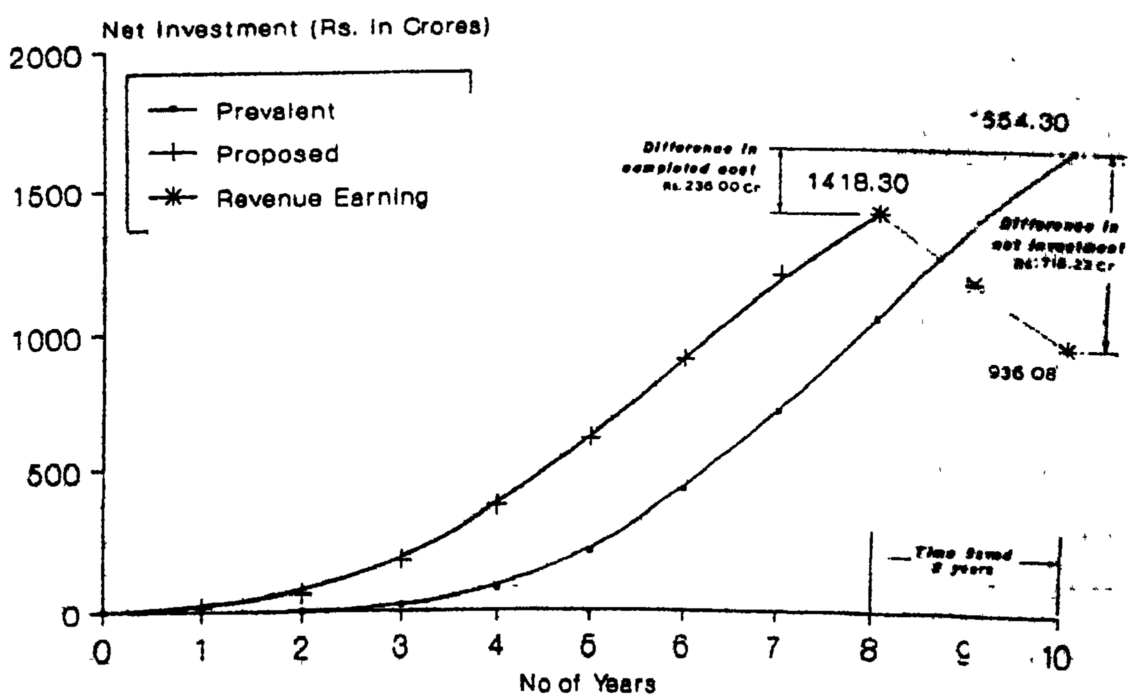


Exhibit - 2

illusion of hydro projects being long gestation schemes.

(h) Two-Stage Clearance

The concept of two stage clearance system was introduced in the hydro power sector to utilize the dead time between Detailed Project Report (DPR) submission and project approval. In stage-I clearance, sanction is accorded for land acquisition (except that coming under submergence) and pre-construction activities aiming towards infrastructure development like access roads, bridges, buildings, communication, construction, power, Environment Impact Assessment (EIA) etc. Under stage-II, sanction is accorded to actual construction of the project (dam, tunnel, power house etc.) and balance land acquisition. Although the Government has approved the two stage clearance system, the envisaged benefits are not becoming visible due to the following reasons :

(i) For the purpose of the first stage clearance, the project authorities need to obtain 'in principle' clearance from the MOEF based on rapid environmental studies. The areas and scope of rapid environmental study remain undefined. Unless and until the MOEF cooperates fully in the project clearance cycle, Exhibit-1, the concept as approved now may not bring any results. An example of this is the Teesta H.E. Project Stage-III in Sikkim (to be executed by the NHPC) whose scientific Rapid EIA study conducted by NEERI took 8 months and the project is pending with the MOEF since February 1992.

(ii) Hydro projects are capital intensive and substantial funds are required for infrastructure development. It has been seen that the infrastructure development of the project (required to keep the project in a state of readiness to start the main components immediately after second stage clearance) costs about 5-6%of the total project cost. Considering the fact that majority of the NHPC projects cost beyond Rs. 1000 crore, cost of infrastructure development will be more than Rs. 50 to 60 crore and for approval of the same we have to approach the Public Investment Board (PIB) through a time consuming channel. If the infrastructure cost is to be reduced to make it within the purview of the Committee of Secretaries, all the necessary infrastructure cannot be made before the construction of the main project.

(iii) Lastly, there appears to be an apprehension that first stage clearance would mean commitment to the nation regarding project execution. Some hesitation is also evident due to the financial crunch. It needs to be conveyed that if in a very rare circumstance a particular project is dropped, even then the benefits to the entire portfolio of projects would far outweigh the loss (or social cost ?). As can be seen from the economic analysis, Exhibit-2, that while the saving in completed cost would be Rs. 236 crore, the difference in net investment comes to a huge sum of Rs. 718.22 crore in each case. Even the dropped case after first stage development, would not mean any loss in real sense since the infrastructure developed in terms of roads, bridges, and other communication would be utilised as essential facilities by the inhabitants of that remote area.

In a nutshell, therefore, the E & F approval needs to be defined and simplified. The MOEF should adhere to the project clearance cycle as suggested. Authority of approval for the Committee of Secretaries may be increased to cover the actual cost of infrastructure. The decision makers need to be convinced about the enormous gains from the Two-Stage Clearance of hydro projects, which need to be accelerated for the ultimate benefit of the power sector as a whole.

Development Plan

Recently, the CEA has carried out detailed generating capacity optimization and other studies for the next fifteen year period i.e. upto 2006-07 (end of the Tenth Plan). Based on these studies, the CEA has suggested addition of 50,000 MW hydro capacity in the country over the next fifteen-year period. This will mean an average annual growth rate of 9.1 per cent in hydro capacity addition. However, as the capacity addition during VIIIth Plan will be restricted, the actual growth rate during the IXth and Xth Plan periods would have to be considerably higher. This will be an optimistic and difficult task if we were to consider the fact that during the last three decades the average growth rate achievement has been only 6%. If the development of hydro power takes place based on past trends, there would be a shortfall of about 80 billion units generation from the hydro option which would have to be generated from the thermal option to meet the demand adequately and this would amount to a substantial additional cost to the nation of the order of Rs. 3000 crores annually on account of fuel cost only.

From long term considerations of national economy, environment and conservation of limited fossil energy resources, the available hydro resources need to be harnessed upto the maximum feasible extent as early as possible. If we can succeed in adding about 50,000 MW of hydro capacity within next 15 years, the country would save a lot in creating an equivalent peaking capacity through thermal projects besides recurring advantage on saving coal and its transportation costs.

Hence, a comprehensive programme for advanced action on projects with emphasis on hydro generation should be included for consideration during the IXth Plan period. It is strongly felt that funds for hydro projects should be exclusively earmarked if the desired optimum operation of ever expanding power system in the country is to be achieved. It is essential, therefore, to start work in the VIIIth Plan itself as overall gestation periods of power schemes are quite long and a lot of time is spent in arranging various inputs/clearances/ infrastructure etc.

Needless to say that accelarated hydro power development is the key to optimum growth of the power sector needed so much for a sustainable and balanced growth of the nation. □

The author is Chairman & Managing Director, National Hydroelectric Power Corporation, New Delhi.

Mini And Micro Hydel Generation

ENERGY from small water source is probably the oldest and yet, the most reliable of all renewable energy sources. In India, our ancestors used this energy for grinding food grain for centuries. As a result, our expertise in this sector today is at par with the most developed nations in the world. The advantage of this resource is that it can be harnessed comparatively conveniently by even from nearby stream or canal in the most environmentally benign manner.

Hydel power projects are like gold mines and continue to become more and more attractive with passage of time. It is also cheap. For instance, hydel power from Bhakra is only about 7 paise per unit as against Rs. 2 per unit from latest thermal projects.

> A typical 2 x 100 KW micro hydel plant in hilly region operating at a capacity utilization factor of 30% over a year :
>
> — Avoids nearly 170 tonnes of carbon emission.
>
> — Saves burning of nearly 630 kg of fuelwood for cooking apart from providing lighting to the hamlets

Small hydro power (SHP) plants which generate electricity in small scale in a few KW to MW range are now also being made attractive through standardisation and better planning and management to reduce initial cost and commissioning schedules. These SHP plants are a useful renewable energy source of decentralized power in remote and hilly regions isolated from main grids but endowed with hydraulic resources. The programme for mini and micro hydel power generation is particularly suitable for the Himalayan belt.

Incentives Offered

1. For grid connected schemes capital subsidy of upto 25% of reasonable E&M (electro and mechanical) and civil costs.
2. For non-grid connected schemes—capital subsidy of upto 50% of reasonable E&M and civil costs.

These incentives are available if the power generated is primarily for public distribution and that the projects are not financed by multilateral or bilateral agencies. Besides, the Ministry of Non-Conventional Energy Sources also shares upto 50% of the cost of preparation of DPRs (Detailed Project Report).

SHP presents an attractive proposition to private investors as a profit making venture :

- Profitability decided once and for all by the choice of equipment, type of financing and legal set-up.
- No recurring fuel costs; no consumption of valuable raw materials, low operational and maintenance costs.
- Payback periods ranging from 5-10 years against plants with a life span of over 30-40 years.
- Capital subsidy from MNES as detailed above.
- Many sites already identified—DPRs available with State agencies.
- Guidelines/policies/incentives for private investors/developers for wheeling, banking, scale and purchase of generated power already announced by some States and under finalization by others.

Advantages

- Readily accessible source of renewable energy.
- Can be exploited wherever sufficient water flows—along small stream, medium to small rivers, irrigation dams/canal

drops etc. over descent heads as low as 2m. and above.

- Reliable, mature and proven technology.
- Reduces Transmission losses.
- It accelerates industrial and economic development of the region.
- Least polluting, entails no wastes, no production of toxic gases, no adverse effects on environment.
- The potential of small hydro power is estimated to be around 5000 MW. This remains largely untapped.
- Can compete with thermal, diesel, gas based stations through adoption of standardized designs and careful planning.
- Limited initial investments and short gestation periods attractive to private investors as a profit making venture.

As a result of various efforts made in this direction, 120 micro/mini/small hydel schemes (upto 3 MW capacity) totalling about 86 MW have been installed in the country so far. One hundred and seventeen schemes aggregating about 125 MW are presently under construction. The VIII Plan proposals envisage a capacity addition through such schemes of about 200 MW.

A Small Hydro Plant of 1000 KW capacity operating for 6000 hours a year :

— Saves about 1400 tonnes equivalent of oil.

— Avoids nearly 1920 tonnes of carbon emissions.

Prospects Of Increased Indigenous Availability Of Crude Oil And Natural Gas

Dipak Basu Chaudhuri

There is no need to be despondent over the recent downtrend in the domestic crude production, says the author, as in his view, this is largely due to rectificiatory measures being undertaken to restore reservoir voidage balance. In the light of what has been achieved in the indigenous exploration sector since the sixties, first decade of the coming century is bound to be a decade of growth making India a leading player in the global oil and energy business, he feels.

THE steady downturn in domestic crude production since 1990-91 has created natural apprehensions about prospects of securing "Energy Independence" for the country.

The petroleum industry in India stands out as an example of the strides made by the country in its march towards economic self-reliance. In 1947, India produced 0·25 million tonnes of crude from Digboi with more than ninety per cent imports. By 1984-85, indigenous crude oil production increased to 28.99 million tonnes—achieving self—sufficiency to the extent of nearly seventy per cent.

There has been a reduction in the production beginning from the year 1990-91. For the year 1991-92, the target was 31.9 million tonnes while actual production was 30.343 million tonnes. Crude oil production planned for the year ending March, 1993 is 28.464 million tonnes. It should be borne in mind that the projected reduction in domestic production is largely due to rectificiatory measures being undertaken by the ONGC in Bombay High and other fields to restore reservoir voidage balance. This is almost like "planned maintenance shutdowns" of thermal power plants. The ONGC was also unable to increase crude production in North Gujarat because of refinery and marketing constraints. The troubles in the North-East region also contributed to decline in production.

Exploration

The current fall in production does not mean that there has not been enough work in exploration or exploration work does not promise a good future.

When our exploration groups, investors and planners deal with 26 petroliferous basins covering about 500,000 sq. kms. of potential search areas (upto 200 metres isobath area offshore) having 2,400,000 cubic kilometres

volume of potential sediments, they appear to get unconsciously overtaken by the vastness of the search opportunities and its attendant expectations that obviously emerge from it.

Petroleum exploration is a knowledge-based conceptual business of quantifying (both physical and economic) endless uncertainties built-in-around the finite quantum of petroleum resources located in a search area. Oil exploration cannot be defined within the confines of engineering relation that the inputs must have some specific proportion with the outputs. It also does not conform to proportion with the outputs. It also does not conform to usual business economics of investments and returns. Despite quantum innovative advancement in the concepts and constant improvement in search technologies, the oil exploration business is still the most capital-intensive legalised gambling globally industrialized.

Exploration starts with the understanding of how and where oil is formed, accumulated, migrated and trapped to be finally accessed. The factoral understanding of the involved geoscientific variables and appreciation of their influences for ultimate economic gains or losses render directivity to exploration investments.

Despite quantum innovative advancement in the concepts and constant improvement in search technologies, the oil exploration business is still the most capital-intensive legalised gambling globally industrialized.

While every aspect of oil exploration and production has its own trials and tribulations, the estimation of reserves is by far the most vital and disputable aspect. Even more important than the total Reserves-in-place, is the estimation of the Recoverable Reserves.

Generally, proved reserves are fully dependable (100 per cent), probable (50 per cent) are more or less dependable, while possible (25 per cent) are in the range of reasonable speculation. Different expressions are used to indicate the reliability of the reserves estimation, such as Prognostic Reserves and Commercial Reserves.

In case of Indian exploration, the 1960s was the Decade of Initiatives, work in the most potential onshore basins like Upper Assam and Cambay began in this decade. Their inexperience of structuring exploration efforts, managing economic constraints, colossal exploration uncertainities of success, and exemplary professional commitments and personal sacrifices of the oil men were a few of the many distinctive features of the decade. Ploughing of unknown fields gave good yields.

For the indigenous exploration sector, the 1970s was the Decade of Exploration Excellence at least onshore. But for India's offshore exploration, it was the beginning. Giants like Bombay High, Bassein and a number of medium to large offshore fields were discovered. On the onshore front, the number of large discoveries became relatively scarce. During the 1970s, the exploration activities were spread over almost all of today's six commercially producing basins (Bombay off shore, Cambay, Krishna-Godavari, Cauvery, Assam—Arakan and Upper Assam) and seven potential basins (Bengal, Rajasthan, Ganga Valley, Kerala Konkan, Kutch, Mahanadi and Andaman) with varying intensity of efforts depending on the then "current" understanding of the exploration potentials of the areas, success rates achieved and the economic resources made available for exploration. The exploration in Krishna-Godavari, Cauvery, Kutch, Assam-Arakan and Andaman were initiated in the second half of the Seventies. The excellence of exploration success of this glorious decade, perhaps, started generating a sense of "continued" large size finds in the national psyche.

While every aspect of oil exploration and production has its own trials and tribulations, the estimation of reserves is by far the most vital and disputable aspect. Even more important than the total Reserves-in-place, is the estimation of the Recoverable Reserves.

The 1980s has been a period of the confluence of the different stages of maturity of exploration. This was the Decade of Harvesting or Prosperity. The oil industry in general and ONGC in particular, made the highest contribution to the national economy and provided the mightiest support to achieve the success of the VI and the VII Five Year Plans. But as a fallout to this brilliant performance, the expectations of the 'infinity' of indigenous petroleum reserves got almost inseparably implanted into the nation's soul.

Decade Of Growth

The 1990s is earmarked to be the Decade of Stability in order to be succeeded by a Decade of Growth in the coming century.

Of the total "prognosticated" petroleum resource base, only

about 27-30 per cent of it has so far been established as the Geological Reserves (GR). In other words, a vast stock (70%) of resources is awaiting as the future exploration opportunities to discover the "conventional" oil. It is an enviable balance resource based for optimistic structuring of future "expectations" of recoverable-reserves accretion.

So far, our oil men have shown remarkable exploration efficiency and performance. The ONGC/OIL have established a strong R&D base. It will be also possible to go in for more offshore fields deeper than 200 metres.

It is the maturity of Indian explorers and acquisition of basic seismic data that would bring foreign and Indian private sector investors for further intensification of exploration and exploitation of identifiable reserves. Public sector hydrocarbon authorities will have to continue search for oil in the coming decades.

In case of Indian exploration, the 1960s was the Decade of Initiatives, the 1970s was the Decade of Exploration Excellence at least onshore. The 1980s has been a period of the confluence of the different stages of maturity of exploration. The 1990s is earmarked to be the Decade of Stability, to be succeeded by a Decade of Growth in the coming century.

The price of crude oil has not increased much and this also unfortunately led many from efforts to intensify exploration. Cheap oil will naturally not attract investment gambles in new areas

Non-finding of a big field like Bombay High should not discourage us. In the global scenario, 75% of the world's proven hydrocarbon reserves are in 'giant' fields which are one per cent of a total of about 30,000 fields. The world proven reserves have increased by 65% since 1970 but all of these giants were discovered in the 1960s or earlier. Small or marginal fields need not be ignored. Reserve accretion may be achieved through Upgradation/ Revision of the existing 'finds' and by locating 'new' pays in 'old' fields.

While talking of petroleum, we concentrate more on crude oil and forget natural gas which can be used without expensive processing. Oil was convenient for international traders but gas can be quickly used locally in large countries like USA, China and India. We shall be able to locate quite a number of gasfields and also exploit gas deposits of the North-East. In the North-East , we have a large deposit of shales which can provide 100 million tonnes of oil for one hundred years.

ONGC's Gandhar field development project alone would yield 18 55 million tonnes of crude and 24 billion cubic metres of gas. Neelam, Mukta and Panna offshore fields will provide a substantial increase in indigenous production.

The realisation of full potential for the producation of crude oil and natural gas from existing reserves need very heavy front-end investments ONGC, OIL and GAIL had estimated a requirement of approximate Rs. 390,000 million for their projects in the VIII Five Year Plan, against which the plan outlay will be less than Rs. 250,0C0 million. The Ministry of Petroleum and Natural Gas has already initiated a few steps to finance exploitation of established reserves. The Government is likely to announce a Fifth Round for Global Bids during January, 1993.

Reserves

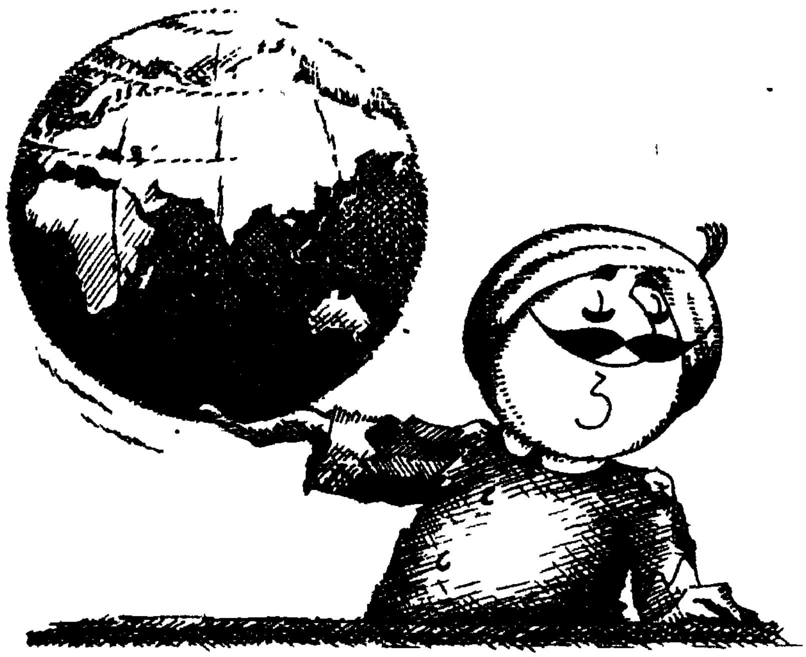
According to the ONGC, Balance Recoverable Reserves (BRR) stood at 700 million tonnes out of a total initial oil-in-lace of 3,771 million tonnes. On this basis, critics say that India ranks amongst the lowest in the world in terms of annual crude production from established reserves.

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It has been earlier mentioned that 'low' price of crude in the world market has led many countries and producers to retain their reserves and to postpone investments in commercial production facilities. But, India in the mid-70s has exhibited its efficiency in estabilishing "Early Production Systems".

With globalisation of the economy, "self-sufficiency" is not the only or most important criterion. With its demand, quality of petroleum scientists and engineers and geo-politic position, our country is destined to be a leading global player in the international oil and energy business. □

The author is Editor, Urja, energy monthly.



Coal : A Unique Natural Resource

T.K. Ghosh

Highlighting the importance of coal in our national economy, the author observes that modern civilization heavily depends on coal as it is one of the main sources of energy. However, its unscientific mining has badly affected environment in the past, particularly in Bengal-Bihar fields. Disposal of fly ash is another problem which needs attention. Protection of environment and development of clean technologies are essential to ensuring full use of coal, he feels.

NATURAL resources, land, water, mineral and energy, in development planning are sinews of an expanding modern economy and are closely inter-related. The most important single lesson learnt about natural resources is that all of them can be developed and not merely exploited. The natural resources are a part of the capital assets of a country and they are useless assets if not developed. Mineral resources are also exhaustible and irreplaceable. Thus, in case of an exhaustible resource like coal, awareness of future as well as of present needs is required.

The key role which coal has to play in the country got well defined in the Second Five Year Plan following the Industrial Policy Resolution (1956) and for the first time public sector started playing a role in increasing coal production in the country. The National Coal Development Corporation was set up in 1956. However, private sector was allowed to continue with the dominant role in coal production till around the end of the Fourth Plan. For exercising effective control over production, consumption, rational distribution, scientific development and more importantly, safety and welfare of workers, the coal industry was restructured in two phases : first by nationalisation of coking coal mines in May, 1972 and subsequently, by nationalisation of non-coking coal mines in September, 1973. Following the results of scientific evaluation of the coal resources, the Fuel Policy Committee of India (1974) recognised coal as the principal source of commercial energy in the country. These developments coincided with the international oil crisis. Thus, an accelerated pace for integrated development of coal industry in the public sector was ushered in.

Black Diamond

People endearingly call coal as 'black diamond'. It is the main source of energy, and directly or indirectly the whole of our modern civilization depends on coal. The various grades of coal determine specific coal uses. Coal is broadly categorised into coking coal and non-coking coal. Coking coal is used in iron and steel making and other metallurgical uses. Whereas non-coking coal is used for industries. It is not known as to why some coals coke and others do not. Coal is a sedimentary rock formed in layers. The thickness of a coal seam may vary from less than one metre to hundreds of

netres, and the length vary from ıbout 200 metres to a few ilometres. Side by side with the ›rganic constituents, mineral natter and rocks are also ıssociated with coal. These are nostly unwanted elements in coal ınd impurities which on burning ıre reduced to ash. Depositional :nvironment thus determine the :oal characters for different coal ıses. Depending on the degree of ›ressure and temperature, wood s transformed into coal in various ıtages in a series starting from ›eat to anthracite through lignite, ignitous coal and bituminous

For exercising effective control over production, consumption, rational distribution, scientific development and more importantly, safety and welfare of workers, the coal industry was restructured in two phases : first by nationalisation of coking coal mines in May, 1972 and subsequently, by nationalisation of non-coking coal mines in September, 1973.

:oal. Coal deposits in India are of wo distinct geological ages. Coal ›f Permean age, formed about 270 nillion years ago, account for ıround 96% and Tertiary coal (30-›0 million years ago) account for :oal in the sub-Himalayan region ınd lignite deposits.

While coal is popularly known ıs the source of energy, it has a ıumber of non-energy uses. It is he mother of a number of :hemicals. Coal tar gives benzol, ›henol, naphthalene, anthracine, :tc. These in turn are raw-naterials for dyes, explosives, ›erfumes, pesticides, plastic, ayon-nylon, artificial rubber etc. Activated carbon from coal is used n refining sugar and in refining ›il for cooking medium. Hydrogenation of coal produces synthetic oil akin to petroleum.

The coal deposits in the country are unique in disposition and are broadly confined in what is popularly called the 'Golden Triangle'.

Coal is used as a feedstock for fertilizers. There are a number of other non-energy uses.

Deposits

Coal deposits in India occur in 61 coalfields/sub-basins spread over 11 States. The total geological reserve up to a depth of 1200 metres is estimated at 196 billion tonnes as on 1.1.1992. This does not take into account the huge reserves of the order of 63 billion tonnes reported to be occuring at a depth range of 700-1600 metres in Mehsana in Gujarat located during oil exploration in that region and not amenable to exploitation by present technology. In addition, lignite deposits are located in a few States, the most important being Tamil Nadu.

The coal deposits in the country are unique in disposition and are broadly confined in what is popularly called the 'Golden Triangle'. Damodar Valley and Singrauli coalfields in the States of West Bengal, Bihar, Uttar Pradesh and Madhya Pradesh form the top East-West side of the triangle and fields in Madhya Pradesh, Maharashtra, Andhra Pradesh and Godavari Valley form the North-West South-East. The Orissa coalfields form the third side. These are coal deposits of Gondwana age. Table I gives the status of geological coal reserve as on Jan. 1, 1992. But the geological assurance of coal as such does not meet the economic planning requirement. The required energy is to be available at reasonable cost and the resources must fulfil two different kinds of conditions, geological and techno-economic. The first kind of condition depends on nature and therefore cannot be influenced. Economic interest on the other hand, depends on technical and economic factors and therefore changes with time. Against the broad spectrum of geological assurance, there is, thus, an additional dimension which distinguishes between coal in place and the amount that can be recovered.

On a broad estimate, not more than 1/3rd of total known geological reserve is exploitable by known technologies. However, coal exploration is a continuing process adding reserves annually and technological innovations may increase the ratio of exploitable reserve to geological reserve. Scientific evaluation of coal reserves is a continuous process as coal development at any stage is subject to dynamic change with developing technologies for exploitation and utilisation and the price at which it is available.

Constraints

The critical constraints for coal development are in the shape

The geological assurance of coal as such does not meet the economic planning requirement. The required energy is to be available at reasonable cost and the resources must fulfil two different kinds of conditions, geological and techno-economic.

of land acquisition, forest and environmental clearance and rehabilitation of displaced persons for mining and exploitation, transportation of coal by various modes to reach the consumers, matching quality of coal with requisite grades and finally improved methods for coal utilisation. The aspects of safety and welfare, conservation,

measures for restoration of degraded land by mining are other important aspects integrated to this process. Land requirement is very large in opencast mining and it is becoming increasingly more difficult to release land for mining at the cost of other important economic activities including agriculture. Environmental management principally includes planning for sustainable use of resource protection and conservation of ecological system. The total geographical area of the country is 329 million hectares of which arable land is 166 m ha The per capita availability of land is declining at a very high rate. Land degradation in India is alarmingly high. Forests are very valuable renewable resources providing the vital life supporting system. However, out of 75 m.ha of area recorded as forest, only 64 m.ha sustain actual forest cover and out of these, only 35 m.ha has adequate cover which account for only 11% of the geographical area of the country at present Experts feel that the dependence on fossil fuel, coal in this case, is one of the primary causes for environmental degradation. Unless environmental management is planned in advance, there may be a limit to growth of coal production and its use.

Due to unscientific mining in the past, environment in coal mining areas has been badly affected resulting in subsidence and underground fires mainly in Bengal-Bihar fields. Land reclamation after mining has now become of paramount interest. There is also the need for minimisation of air and water pollution. The fomulation of an environmental management plan is now an integral part of coal mining practice

Conceptually, exploration for coal differs from that of metals and petroleum. The importance of exploration in the coal industry is not so much finding more of it, but knowing where most of the coalfields are and in choosing the place where it can be mined most efficiently. The coalfields are seldom completely concealed, unlike ore bodies and oil-bearing strata, and finding out in general terms where coal lies, is therefore not a difficult scientific exercise like oil exploration.

The geological conditions of coal occurrences have made great demands on both man and technology. The necessity to explore deeper deposits, to cover long distances both underground and on the surface and to deal with large output has constantly given new incentives for new developments. Most of the coal mining in earlier days in India was done by manual underground method, and a thrust was given on the development of large opencast mines by using heavy earth moving machinery in 1980s. The country has now gone in a bigway for adoption of modern technology for both opencast and underground operations. The major equipment for opencast mining are draglines and large capacity shovel-dumpers.

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Mechanised bord & pillar and longwall technology are being increasingly adopted for underground mining.

Consumption

Globally, coal reached the zenith of importance during the years between the U.S. Civil War and World War I, when its production was growing worldwide at a reasonably steady rate of 4.4% annually. Following World War I, when oil came into picture, coal production tapered off at an annual growth rate of less than 1% till the end of World War II.

Table I

Geological Reserve of Coal & Lignite in India
(As on Jan. 1, 92)

Sl. No.	State	Reserves (in m t.)
	RESERVES OF COAL	
1	ANDHRA PRADESH	10811
2.	ARUNACHAL PRADESH	90
3	ASSAM	295
4.	BIHAR	63398
5.	MADHYA PRADESH	38452
6.	MAHARASHTRA	6100
7.	MEGHALAYA	459
8.	NAGALAND	20
9.	ORISSA	45188
10.	UTTAR PRADESH	1062
11.	WEST BENGAL	30147
	TOTAL	**196022**
	RESERVES OF LIGNITE	
1.	TAMIL NADU	4450
2.	PONDICHERRY	580
3.	RAJASTHAN	870
4.	GUJARAT	383
5.	JAMMU & KASHMIR	90
6.	KERALA	100
	TOTAL	**6473**

ıring the period 1950-73, while e overall world energy nsumption grew by nearly 4.9% ınually, the production of crude ew by 7.2%, gas by 8.4%, hydro-ıclear electricity by 6.5%, as mpared to a growth of only 2% r solid fuels (hard coal, brown al and lignite). With sharp crease in the price of crude oil ıd difficulties in nuclear energy :pansion programmes, coal ·oduction/demand improved ereafter to record a growth rate around 5% during 1975-80. ıe growth rate again deteriorated ıring 1980 to 1987 mainly due competition of other energy sources related to international ıergy prices, emergence of ıtural gas etc.

As a source of energy, coal is aying a very important role in .e economic development of our ıuntry being a stable source of

Conceptually, exploration for coal differs from that of metals and petroleum. The importance of exploration in the coal industry is not so much finding more of it, but knowing where most of the coalfields are and in choosing the place where it can be mined most efficiently.

ıergy like China but unlike the :veloped countries. The pattern ' coal consumption has changed gnificantly during the last two :cades in the country, and today, ıe country's power generation ·ogramme is linked with coal.

Coal mining in India started ı early as 1774, but the ·oduction was limited till the end ſ 19th century mainly for ınsumption by the Railways in ıeir steam locomotives. With the ırust in industrial development, :mand for coal in steel and other ıdustries have also been ıcreasing. In recent plans, coal-ısed generation has shown the ıost rapid increase. Today power :ctor alone accounts for nearly 62% of coal demand in the country and coal-based generation accounts for 65% of electricity generation (utilities + non-utilities). The changing pattern may be seen from sectoral pattern as given in Table II. Coal production has gone up from 38.2 mt. in 1955-56 to 229.3 mt. in 1991-92. India ranks fifth in country-wise coal production. In addition, 12.5 mt. of lignite was produced in 1991-92.

The rapid growth of demand for coal in industries and especially for power sector, has resulted in increased cross-country movement of coal. This has increased the movement of coal through the railways. As a result, in the originating freight traffic of railways, coal is the principal commodity accounting for around 41% of the total freight traffic. Large pithead power stations have come up which used a unique system of movement, known as merry-go-round (MGR) system. There are considerable movement of coal by other modes also like road, rail-cum-coastal shipping, etc. Thus the only way the coal industry can get the control over the market is by developing a greater degree of cooperation with the producers of electric power. This brings into fore the need for integrating coal availability of appropriate quality and movement of coal to the coal generation centres.

Low Quality

Qualitatively Indian coal is generally of low grade with high ash percentage. Thus, every bit of coal that is moved by rail, there is a dead-weight increasing the tonnage. Studies have revealed that if coal is beneficiated to reduce the ash for transporting coal over long distance, it may not only economise on transportation costs but would also result in improved performance of the power plants. We are washing our coking coal before use in the steel plants for making steel. Washed coal is used for coke making while by-product 'middlings' substitute

Over the last few years, the R&D projects have aimed at developing coal conversion processes yielding products which in the long run can replace petroleum and natural gas. Coal hydrogenation and gasification are expected to meet this requirement to foster clean coal technology.

for raw non-coking coal in power generation. It is now considered that even the 'rejects' after washing may be used as a full in fluidised bed combustion (FBC)

Table II

Sector-wise Coal Consumption Trend

(million tonnes)

Sl No.	Consuming Sector	1960-61	1970-71	1980-81	1990-91
1.	Steel & Coke Ovens	9.1	13.5	22.4	27.6
2.	Power (Utilities)	9.1	13.2	36.7	116.7
3.	Power (Captive)	**	**	**	12.5
4.	Cement	2.3	3.5	4.8	9.7
5.	Fertilizer	**	**	2.3	3.9
6.	Railways	15.5	15.6	11.9	5.2
7.	Domestic (Soft Coke)	2.6	4.1	1.3	1.3
8.	Other industries etc.	14.6	21.8	30.3	30.7
	Total :	**53.2**	**71.7**	**109.7**	**207.6**

** Included in other industries.

for power generation. Beneficiation of non-coking coal for use in power stations has now become imperative, both from the angles of plant operation and cost benefits

Because of high ash in Indian coal resulting from combustion of low grade coal in power plants, a crisis is foreseen for disposal of fly ash generated at power plants. Disposal of fly ash requires large areas as ash ponds and may pose a severe problem considering the limited availability of land in the country. On a rough estimate, the low grade coal used in power generation may generate 30% of ash for each tonne of coal burnt. About 40-45mt of ash is thus required to be disposed of annually. With projected growth the dimensions would be phenomenal. By learning to live with crisis and to find solutions, it has now been more or less established that the best wav of disposal of fly ash lies in its use for brick making and cement manufacture, both required for construction purposes

Fly ash which is otherwise considered an ecological hazard and a difficult waste to dispose of is now being used to make high quality bricks. A beginning has been made in a small way. It is informed that a project for fly ash bricks was started at Kolaghat TPS (West Bengal) as it could not provide 700 acres of land a year around the power station for ash disposal. It is estimated that when all the six units (1260 MW) are commissioned, the total fly ash required to be disposed of will be 1.25 million tonnes/annum. So the West Bengal Power Development Corporation Ltd. decided to use fly ash in making bricks. Started on a modest scale in 1989, the project is making good profit and demand of fly ash bricks is high.

Today power sector alone accounts for nearly 62% of coal demand in the country and coal-based generation accounts for 65% of electricity generation.

Need For Clean Technologies

Global energy consumption is rising rapidly, and so in India. India relies heavily on coal for energy generation. But it creates many problems. Mining can ravage the land and burning it generates large amounts of Carbon dioxide and other pollutants. Environmental concerns could limit coal consumption unless technologies to burn it more efficiently or converting it to alternative fuels are adopted.

Over the last few years the R&D projects have aimed at developing coal conversion processes yielding products which in the long run can replace petroleum and natural gas. Coal hydrogenation and gasification are expected to meet this requirement to foster clean coal technology. Coal gasification will gain in its importance for co-generation plants i.e. coal gasification in combination with gas and steam turbines. This concept is expected to considerably improve the total efficiency of a power plant., thus protecting the environment more efficiently. Researchers are concentrating on the production of a clean burnable gas which would enable coal to be employed in a gas turbine process.

For modern power and heat co-generation plants, the fluidized bed combustion offers a number of advantages in observance of environmental protection rules and improvement of waste disposal. Integrated gasification combined cycle (IGCC) are considered as among the cleanest of emerging clean coal technologies. Where the coal resources are deepseated, difficult and highly expensive for mining, underground gasification of coal assumes paramount importance although very little development has taken place so far. An increasing use of coal as a feed stock for chemicals (and petrochemicals) can be predicted. In future increasing usage of coal for power generation, heating will be advanced by new techniques like F.B.C. and coal-slurry fuels.

From finding of coal to end-use, there is something unique in each stage for development of coal as a national asset. Coal is a versatile wealth. Apart from use as an energy source, it has a number of non-energy uses. Even the wastes after burning coal in the form of fly ash is turning out to be an important resource. Coal is thus an unique resource where nothing is wasted if proper developments are planned. Most of the basic amenities of daily life are derived from coal. Although power plants are the largest consumers of coal for generation of thermal electricity, in the years to come, according to some experts, coal may find its true value not as a fuel but as a reductant in metallurgical industry, as a feed stock for liquid fuels and a wide variety of synthetic products including fertilizers. Effective steps for environmental protection, transportation, clean coal technologies would need to be ensured to make full use of coal. Coal has been truly called as **BLACK DIAMOND** and may emerge as one of the most important natural resources of the country if properly developed. □

Disposal of fly ash requires large areas as ash ponds and may pose a severe problem considering the limited availability of land in the country.

The author is Joint Adviser (Coal), Planning Commission.

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Biogas : A Useful Source Of Energy

Dr. K.C. Khandelwal

Biogas is a boon for the rural population, says the author. Apart from being an ideal cooking fuel, its plants provide enriched manure for improving soil-health and increasing crop production. In view of its multiple socio-economic benefits, Government should continue its policy of giving incentives for establishing biogas units, he feels.

BIOGAS is a sustainable source of energy by virtue of its production from vastly available cattle dung, simplicity of construction, operation and maintenance of the production units, and multiple benefits accrued at the national and the user level. The science of production of biogas from waste is not simple as large verieties of tiny organisms are involved in a synchoronised manner to produce methane, which is the main inflammable component of biogas The methane producing bacteria are unique and therefore known as 'archebacteria' and now form a separate kingdom in the classification of living organisms There are still many gaps in this science on which scientists and technologists have been working in both developed and developing countries. However, man has learnt to replicate the natural phenomenon of biogas production in marshy lands by developing biogas production units much before its science became known.

Thanks to our scientists that a field-worthy simple-to-construct and easy-to-operate design of biogas unit called "Gramlaxmi" was developed in 1953-55. This design has become popular throughout the world as the Indian model of biogas plant. It was adopted by the Khadi and Village Industries Commission (KVIC) for extension in 1962. It is based primarily on cattle dung mixed with water in equal proportion to be fed daily This slurry is held in an underground digester for about 30 55 day period to harness fuel-value. The digested slurry which comes out daily is an enriched manure for use in agriculture, pisciculture, mushroom cultivation etc Besides these two economic benefits, the biogas plants accrue many social benefits.

Boon To Women

Biogas plants help in removing, rather eliminating, the drudgery of women and children from collection and head-loading of fuel-materials, working in smoky kitchen, time-consuming cooking and washing of blackened utensils and sufferings from eye and lung diseases due to smoke. It is revealing when Ladhuben of village Bamenbore, Surender nagar, Gujarat, stated "The value of biogas cannot be calculated. It has added 20 years to my life". User woman's varied experiences recorded are :

- a respite from smoke and scorpion bites that are quite common while picking up of fuelwood and shifting dung cakes from heaps ;
- no bleeding of hands to be borne while cutting branches of thorny trees ;

— more space in the house as no need to store firewood and dung cakes particularly in rainy reason;
— can spend more time with children;
— increase in school enrolment by girls who do not require to go out for collecting fuelwood or take care of siblings when the mother goes out for fuelwood collection.

Potential And Achievement

Estimates indicate a potential of setting up of about 40 million family type biogas units in the country based on ownership of a minimum of four heads of cattle. However, a potential of about 12 million units is considered to be realisable in a time span of 10-15 years. With the likely development of new simple designs based on leafy biomass, crop residues, garbage, weeds etc, this potential would get enhanced. However, so far over 1.64 million biogas units have been set up in the country, which represent harnessing of about 13 per cent of the realisable potential. The annual rate of construction of biogas units has increased tremendously from the level of 10,000 plants in 1980 to about 1,80,000 plants at present. Not a meagre achievement in itself. However, there is still a long way to go to realise the full potential. The State-wise data given in Table 1 show that the growth has been skewed as only the States of Goa, Gujarat, Himachal Pradesh, Kerala, Maharashtra, Mizoram and Tamil Nadu have harnessed more than 20 per cent of their respective potential and rest of the States have lagged behind.

Thanks to our scientists that a field-worthy, simple-to-construct and easy-to-operate design of biogas unit called "Gramlaxmi" was developed in mid-fifties. This design has become popular throughout the world as the Indian model of biogas plant.

National Project

The Ministry of Non-Conventional Energy Sources (MNES) is continuing implementation of the National Project on Biogas Development (NPBD), which was started in 1981-82, as a Centrally Sponsored Scheme, during the Eighth Five Year Plan period. A target of setting up 7.5 lakh units with a budget of Rs. 310.00 crore has been planned. For 1992-93, the project has a target of 1.35 lakh plants and budget outlay of Rs. 56.87 crore.

The project provides incentives as summarised below :

— Central subsidy to beneficiaries, for small capacity plants only: higher rates of subsidy for small and marginal farmers and scheduled castes and scheduled tribes: still higher rates for plain areas of Assam, Terai region of Uttar Pradesh, Western Ghats and Andaman and Nicobar Islands and the highest rates for North Eastern Regional States, Sikkim, Jammu & Kashmir, Himachal Pradesh and hilly districts of Uttar Pradesh.
— Turn-key job fee @ Rs. 400 per plant to trained self-employed workers, voluntary organisations, State corporate bodies etc, with the provision of rendering atleast two years' free maintenance warrantee to beneficiaries.
— Cash incentives @ Rs. 50 per plant to notified promoters like school teachers, social workers, Government village level functionaries etc.
— Service charges to project implementing departments and agencies for creation of "biogas nucleus cells" at the block, district and State levels
— One-time repair charges @ Rs. 750 per plant after expiry of the warrantee period; higher repair charges upto subsidy level on case by case basis.

The annual rate of construction of biogas units has increased tremendously from the level of 10,000 plants in 1980 to about 1,80,000 plants at present. Not a meagre achievement in itself. There is still a long way to go to realise the full potential.

— Demonstrations on the use of manure in farmers' fields of atleast half-an-acre, @ Rs. 1000 per demonstration and
— Cash prizes to best States, districts and panchyats.

The Commercial and cooperative banks are supporting the biogas programme by providing medium term loans under "agriculturally priority areas" with a provision of repayment in 5-7 years, without hypothecation of land.

Technology

The MNES has approved in all seven models of biogas plants for extension. The most popular and new designs are :

— Floating gas holder KVIC type
— Fixed dome 'Deenbandhu'
— Pragati model
— Rubberized nylon—fibre portable model only for hilly areas.

The 'Deenbandhu' model, cheapest in both installation and maintenance cost, is made of bricks, cement and sand and requires high construction skill to

make the gas storage dome portion a gas-leak proof structure. Its large extension is limited to training of professional masons in acquiring proper skill, use of the best quality of cement and bricks and construction of the unit under strict supervision as per approved standards. Whereas the KVIC type plant is although costly, it has the added advantage of simple construction and easiness of operation, maintenance and repair.

Sanitation

Sanitary disposal, rather conservation, of human waste for manurial purposes, has become possible, if pour-flush toilets are linked with biogas units. It also helps in dispensing with the septic tanks or leach pits, thereby resulting in savings in the costs. The MNES is providing an additional, either Central subsidy or turn-key job fee for constructing a toilet and attaching it with biogas unit. Already about 95,000 sanitary toilet linked biogas units have been set up in the country. These are very popular in the States of Maharashtra, West Bengal and Gujarat. Under a separate Community, Institutional and Night-Soil Based Biogas Plants Programme, about 60 community toilet linked plants have been installed and their demands have been increasing, particularly from semi-urban areas.

Under the situation of short supply of diesel oil in 1976, many farmers in the State of Haryana came out on their own with an alternative of modifying engine to run with a mixture of biogas and oil.

Diesel-oil Saving

Under the situation of short supply of diesel oil in 1976, many farmers in the State of Haryana came out on their own with an alternative of modifying engine to run with a mixture of biogas and oil. Duel-fuel engines are now available in the market to replace diesel oil upto 80 per cent with biogas. With a view to promoting saving of diesel oil by using biogas, MNES has started recently a demonstration scheme. It provides for financial assistance of Rs. 2,500 for a retrofit to modify diesel engine and two or three baloons made of plastic or rubber for transportation of gas and Rs. 5,000 per plant of capacities ranging from 8 to 15 cubic metres gas production per day. It is planned to organise about 500 such demonstrations in a year during the Eighth Plan period. Economic analysis of such usage of biogas indicates a repayment period of less than two years for the total investment made without taking into account the Central assistance.

Training Support

A decentralised approach has been practised in arranging technical and training support to State nodal departments and implementing agencies for effective and accelerated implementation of NPB. Fourteen Regional Biogas Development and Training Centres have been established, one each at :

- Andhra Pradesh Agricultural University, Hyderabad.
- Assam Agricultural University, Jorhat.
- Centre of science for Villages, Wardha.
- Gujarat Agricultural Unviersity, Anand.
- Himachal Pradesh Krishi Vishwa Vidyalaya, Palampur.
- Indian Institute of Technology, Kharagpur
- Institute of Renewable Energy, Nasik.
- Kasturbagram Krishi Kshetra, Indore.
- Orissa University of Agriculture and Technology, Bhubaneswar.
- Rajasthan Agricultural University, Udaipur.
- Rajendra Agricultural University, Pusa-Samastipur
- Tamil Nadu Agricultural Unversity, Coimbatore and
- University of Agricultural Sciences, Bangalore.

The new phase of development of biogas would depend upon scientific initiatives to enhance the rate of gas production, involvement of self-employed rural youth and voluntary organisations in the construction and post-installation servicing of plants; financial support from banks and its integration with other allied programmes and facilities.

These Centres are also bringing out technical literature and training materials on biogas in regional languages. The Coimbatore, Indnore and Kharagpur Centres have brought out communication kits for the target groups of village masons, women beneficiaries and supervisors respectively. The Udaipur Centre has brought out a manual on repair and maintenance of biogas plants in Hindi. These kits are used for training purposes and also to equip field functionaries in improving the quality of the programme.

Functionality

A 3-tier monitoring and evaluation system exists. The first

Table I

State-wise achievement vis-a-vis potential of biogas plants

State/Union Territory	Estimated Potential (No.)	Plants set up (No.)	%of potential harnessed
Andhra Pradesh	1065600	111682	10.48
Arunachal Pradesh	7500	89	0.12
Assam	307700	10734	3.48
Bihar	939900	68263	7.26
Goa, Daman & Diu	8000	1867	23.33
Gujarat	554000	152531	27.53
Haryana	300000	22074	7.35
Himachal Pradesh	125600	28000	22.29
Jammu & Kashmir	128500	955	0.74
Karnataka	680000	81154	11.93
Kerala	150500	31607	21.00
Madhya Pradesh	1491200	45104	3.02
Maharashtra	897000	472131	55.63
Manipur	38700	532	1.37
Meghalaya	24000	269	1.12
Mizoram	2200	789	35.86
Nagaland	6700	1214	1.85
Orissa	605500	69815	11.53
Punjab	411600	19392	4.71
Rajasthan	915300	42551	4.64
Sikkim	7300	814	11.15
Tamil Nadu	615800	146263	23.75
Tripura	28500	274	0.96
Uttar Pradesh	2021000	210283	10.40
West Bengal	695000	56297	8.10
Andaman & Nicobar	2200	98	4 45
Chandigarh	1400	82	5.85
Dadra & Nagar Haveli	2000	149	7.45
Delhi	12900	617	4.78
Pondicherry	4000	490	12.25
Lakshadweep	100	—	—
All India	1,20,50,000	15 75,030	13.07

Table 2

NCAER's Evaluation survey study of household biogas plants set up during the Seventh Plan period—Sample size and percentage of working commissioned plants

State/U.T	Sample Size (No. of Plants)	Working Plants (%)
Andhra Pradesh	1989	74.6
Assam	705	90 4
Bihar	1797	58.9
Gujarat	2009	88 5
Haryana	785	82.8
Himachal Pradesh	699	80.2
Karnataka	1505	95.0
Kerala	1109	85.5
Madhya Pradesh	1410	79.7
Maharashtra	4410	80.7
Mizoram	205	50.0
Orissa	1510	76.8
Punjab	403	99.7
Rajasthan	1208	44.8
Tamil Nadu	2700	80 5
Uttar Pradesh	2990	48.6
West Bengal	1310	90.8
Delhi	98	25.4
Manipur	55	83.3
Sikkim	55	86.5
All India	**26952**	**77.1**

ier is the self-monitoring by way of inspection reports from the project implementing departments and agencies on quarterly basis. The second tier is the direct monitoring by the MNES through its eight Regional Offices. The last tier is the evaluation survey study by independent agencies. Results of the third round of the sample survey study conducted by the National Council of applied Economic Research, New Delhi, in respect of plants set up during the Seventh Plan period indicate that about 77.1 per cent of the commissioned plants were working satisfactorily. State-wise status of working of plants is given in table 2. The study covered a total sample of about 7,000 plants distributed in 251 districts in 20 States/Union Territories.

Awareness Campaigns

The NCAER's study has also brought out that two-thirds of biogas plants were owned by the people belonging to the Scheduled Castes and Scheduled Tribes and small and marginal farmers. However, only 15 per cent of the households were operating their plants to the rated capacity, even though 27 per cent households had adequate quantity of dung for the purpose. Thus, there is a need to organise educational awareness campaigns atleast in the villages having concentration of plants. The States of Gujarat, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh and also KVIC have been selected to launch such campaigns based on regional packages developed on local idioms and folk art forms. The aim is to cover almost all biogas owning households once in three years period. In the second phase, States of Andhra Pradesh, Assam, Karnataka, Madhya Pradesh and West Bengal are proposed to be included.

Research And Development

Biogas Research and Development Programme aims at (i) 5-8 per cent enhancement of biodigestibility of cattle dung and other organic wastes; (ii) doubling of gas production rate and (iii) enrichment of manurial value. A Coordinated Project on Microbiology and Bio-Process Engineering of Methane Production has been in operation at eight institutions, namely Annamalai University, Annamalainagar; Haryana Agricultural University, Hissar; Indian Agricultural Research Institute, New Delhi; Indian Institute of Sciences (IIS), Bangalore, Maharashtra Association for Cultivation of Sciences, Pune; National Dairy Research Institute, Karnal; Tamil Nadu Agricultural University (TNAU), Coimbatore and Tata Energy Research Institute, New Delhi These institutions have isolated efficient anaerobic bacteria in pure-cultures for degradation of cellulose and fatty-acids and also for methane production Efforts are now being made to develop improved strains by genetic engineering techniques to make efficient co-cultures and to test them for field applications. IIS and TNAU have a joint project to develop a field worthy efficient design of biogas plant for processing of leafy biomass.

Value added utilisation of manure has been taken up at Annamalai University, Bhartiya Agro Industries Foundation (BAIF), Pune, Central Food Technological Research Institute (CFTRI), Mysore, Central Institute of Fresh Water Acquaculture (CIFWA), Bhubaneswar and Punjab Agriculture University (PAU), Ludhiana Field trials on slurry coated seeds of different crops are being conducted in Rajasthan, Tamil Nadu and Uttar Pradesh under the aegis of Annamalai University. BAIF is using slurry for vermi-composting and CFTRI is attempting its use as a rooting-medium for tissue cultured crops. Similarly, CIFWA and PAU are developing package of practices for using slurry in pisciculture and in mushroom cultivation respectively.

Indian rural energy scenario is now a witness to vast and varied experiences in the field of extension of biogas. Its relevance to agriculture has again been reinforced recently by the Parliamentary Committee on Fertiliser Pricing which has recommended Government support for a long term biogas development programme to achieve 120 lakh plants by 2000 A.D. Similarly, the National Seminar on Rural sanitation held recently at New Delhi has recommended large scale education programmes for women to overcome social inhibitions in adopting biogas plants linked with toilets. However, the new phase of development of biogas, which has already begun would depend upon scientific initiatives to enhance the rate of gas production, in turn reducing the cost of plants; large-scale involvement of self-employed rural youth and voluntary organisations in the construction and post-installation servicing of plants; financial support from banks with insurance package against failures and damages and its integration with other allied programmes and facilities. □

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ENERGY

The National Power Scene

S.K. Nayyar

The power generation programme in the country has made phenomenal progress with the advent of the Five Year Plans, yet the power shortage continues due to ever increasing demand, says the author. The situation should improve as the Government is keen to strengthen this vital sector of economy. The new industrial policy too aims at encouraging greater participation of the private sector in power generation.

ELECTRICITY in India is barely hundred years old The first power supply was commissioned in 1897 in Darjeeling. Then followed the Sivasamudram hydel power station in Karnataka in 1902. In pre-independence days the generation and distribution of power was only in the private sector and confined to urban areas. The total power installation capacity in 1947 was as low as 1400 MW. With the advent of the Five Year Plans, power generation programme made phenomenal progress. The increase in energy production between 1950-51 and 1991 92 is of the order of 42 fold, six fold increase in the production of coal and 130 fold increase in the production of oil. It still leaves a gap of 8.5 per cent energy shortage and about 18 per cent peak shortage and there is need to import 2875 million mt coal per year. The total requirement of energy in the economy is likely to double between 1986 and 2004. Studies also show that while the demand for electricity in the entire economy has risen at the rate of about ten per cent during 1980-87, the demand in the household and agricultural sectors increased at the rate of 14 03 per cent and 14.58 per cent respectively per year

The sources of power production are thermal, hydel, nuclear and non-conventional Thermal energy generation is based on coal, furnance oil and natural gas and hydro power is mainly based on canal network knitted by dams India is a veritable fountainhead of hydro power which represents a renewable source of energy and enjoys many intrinsic advantages as compared to thermal power. Today power production in India is in private as well as central and state sectors.

The power generation capacity was as on March 31, 1990 is shown in Table 1.

During 1990-91 a target of 4,212 MW was envisaged comprising 2970.5 MW thermal,

Table 1
Capacity MW

Type	State Sector	Private Sector	Central Sector	Total	% share Installed Capacity
Thermal	27 169	2 398	13 550	43,417	69%
Hydro	17 108	276	924	18,308	29%
Nuclear			1,565	1,565	2%

006 MW hydro and 235 MW uclear. The achievements were 776.5 MW comprising 2331 MW ıermal and 445.5 MW hydel. For 991-92 the capacity addition rogramme has been of 3810.8 IW comprising 2586.5 MW ıermal, 754.3 MW hydro and 470 IW nuclear. Against this a apacity of 3026.5 MW was added omprising 2370.5 MW thermal, 436 MW hydro and 220 MW nuclear. In short the installed power generation capacity in the country increased from a meagre 1400 MW in 1947 to about 69,000 MW at the end of 1991-92. The addition to power between 1988-90 has been shown in Table-2.

A continuous decline in hydel-thermal mix is causing concern. It has declined from 51 : 49 MW plan 1962-63 to 40 : 60 at the end of the Fifth Plan, 34 : 66 at the end of the Sixth Plan and 30 : 70 at the end of the Seventh Plan. Unless the trend is reversed, it would slide down to 25 : 75 at the end of the Eighth Plan. The country should aim at achieving a 40 : 60 hydel thermal mix by the end of the Ninth Plan period. Looking at the projected demand scenario of a total generation capacity of 1,40,000 MW by the turn of the century, such a mix would require creation of a total hydel capacity of merely 55,000 MW by the year 2000.

Lack of adequate and assumed financial resources, diversion of earmarked funds to thermal projects, undue delay in deciding the implementation of hydel projects caused by problems

Table 2
Addition To Power Generation Capacity Megawatt

ear	Thermal	Hydro	Nuclear	Total
)85-86	2977	1011	235	4223
)86-87	1920	704.5	—	2624.5
)87-88	3912.1	1069.34	—	4981 44
)88-89	4117.3	532.7	235	4885
)89-90	4177.81	509 9	—	4687.7
)85-90	17104.81	3827.44	470	21401.64

Regionwise

Region	Potential as per assessment (MW) 60% LF	Potential developed 60% LF	% of potential developed	Potential under development 60% LF	% under develop ment	% of potential developed & under developed
Northern	30155	3805.80	12.62	2354.10	7.81	20.43
Western	5679	1757.33	30.94	1341.33	23.62	54.56
Southern	10763	5217 58	48.48	1154.00	10.72	59.20
Eastern	5590	849.67	15.20	745.90	13.34	28.54
N East	1857	252.83	0 79	345.72	1.09	1.88
All India	84044	11383.21	14.14	5941.05	7.07	21.21

The basinwise status of Hydro Electric Power Development is given in Table 3.

Table 3

River System	Potential as per reassessment (MW)	Potential developed MW 60% LF	% of potential developed	Potential under development (MW)	% under develop-ment	% of potential developed & under development
1. Indus	19988	2570.75	12.86	1308.27	6.55	19.41
2. Ganga	10715	1675.05	15.63	1077 45	10.06	25.69
3. Central Indian rivers	2740	598.00	21.82	1341.50	48.96	70.78
4. East flowing rivers of South India	9532	3573.75	37.49	748.15	7.85	45.34
5. West flowing rivers of South India	6149	3177.83	51.68	1010.30	16.43	68.11
6. Brahmaputra	34920	287.83	0.82	455.38	1.30	2.12
All India	84044	11883.21	14.14	5941.05	7.07	21.21

of acquisition of land, provision of other infrastructural facilities, clearance from enviromental angle, rehabilitation of displaced human population etc. are some of the major constraints in the development of hydro resources. In a situation to which generation of power is imperative for economic growth, there is no alternative but to take a total view of the pros and cons of each option and to determine the overall balance of where the advantage lies. Although the cost of construction of hydel station is more or less the same as that of the coal based station in terms of investment per MW, it scores over the latter in a big way because it involves no capital or recurring expenditure on the production and transportation of a fossil resource. It has been estimated that every 1000 MW of hydel capacity, worked out at 40 per cent of plant Load Factor, results in the annual saving of around Rs. 140 crore on the production and transportation of coal. There are several countries including Norway, Zambia, Zaire, Ghana, Mozambique, where almost hundred per cent power comes from hydro stations.

The increase in energy production between 1950-51 and 1991-92 is of the order of 42 fold, six fold increase in the production of coal and 130 fold increase in the production of oil.

Thermal Power

Thermal generation accounts for nearly 70 per cent of power generated in the country. As on January 1992, the coal resource of India upto a depth of 1200 metres, has been estimated by the Geological Survey of India at 196022.90 million tonnes.

Coal is India's prime source of energy and with its estimated reserves of 176 billion tonnes. India has only one per cent of the global coal resources. But it is the forth largest producer of coal with 229.3 million tonnes in 1991-92. The coal production is slated to reach 308 million tonnes by 1996-97. Strategies adopted to achieve higher rate of production include reorganising existing mines and opening up of new projects both open cast and underground. The target of coal production in 1992-93 is 238.2 million tonnes.

Lignite

The current estimates of lignite resource in India is about 6500 million tonnes, out of which around 77 per cent occur in Tamil Nadu. Smaller deposits exist in Gujarat, Rajasthan, Jammu and Kashmir, Kerala and Pandicherry. The Neyveli Lignite Corporation in public sector is engaged in mining of lignite and its utilisation for power generation and other purposes was set up in 1956. Apart from mining over 17 million tonnes of lignite per annum, it is looking after two thermal power stations of 1260 MW. Another power station of 840 MW is under implementation. The NLC produced 12.54 million tonnes of lignite against a target of 12.32 million tonnes and generated 8009.08 million units of power against a target of 7750.0 million units in 1991-92. A lignite mine of 1.7 million tonnes per annum with linked thermal station of 2 x 120 MW have been sanctioned in Bikaner district of Rajasthan.

Gas-based power stations are ideal for meeting peaking load requirements. These power stations have a short gestation period of 3-4 years and use a relatively non-polluting fuel source. It is proposed to add a capacity of 7677 MW of gas based capacity during the VIII Plan period.

Long back our planners realised that for a country of India's size and diversity, any large scale power development programme could not be sustained without an adequate manufacturing base. The decision to manufacture sophisticated power plant equipment indigenously led to the formation of the Bharat Heavy Electricals Ltd. The first plant was set up at Bhopal in mid-1950s. Three more plants were set up at Hardwar, Hyderabad and Tiruchchirappalli in the 1960s. In less than three decades, BHEL has made India self reliant in power equipment manufacture with its 13 manufacturing plants, over 100 projects sites and many service centres including R & D complex in Hyderabad.

India is a veritable fountainhead of hydro power which represents a renewable source of energy and enjoys many intrinsic advantages as compared to the normal power.

The NTPC has completed sixteen years since inception in 1975. The corporation set up in the backdrop of severe power shortages and mounting difficulties in augmenting capacity by State Electricity Boards with a mandate to accelerate the power development efficiently with an installed capacity of 11,333 MW achieved during a short span of 16 years.

The corporation's coal-based projects at Singrauli (UP), Korba (MP), Ramagundam (AP) Vindhyachal (MP) and Rihand (UP) and the gas-based projects at Anta (Rajasthan) and Auraiya (UP) have been completed to full capacity. The implementation of remaining coal based capacity at Farakka (WB), Kahalgaon (Bihar) Dadri (UP) and Talcher (Orissa) and gas based capacity at Kawas

(Gujarat) and Dadri (UP) is in progress.

During 1991-92 the NTPC added an additional generating capacity of 788 MW. It took over the 420 MW Feroze Gandhi Unchahar Thermal Power project on 13 Feb. 1992, thus raising the total installed capacity of the Corporation to 11,333 MW on 31st March, 1992. The present capacity of the NTPC is 11782 MW. The generation from NTPC stations represents 21.4 per cent of total energy generated in the country and 29.4 per cent of energy generated by thermal units. The corporation plans to add 5002 MW during the VIII Plan period to nations's power capacity.

Nuclear Power

With the launching of atomic energy programme in the late 1940s a three stage programme was drawn to produce power from uranium and thorium resources. The first stage comprised natural uranium fuelled Pressurised Heavy Water Reactors (PHWR) to produce power and plutonium as a by-product. In the second stage we were to have plutonium fuelled

> **A continuous decline in hydel-thermal mix is causing concern. It has declined from 51 : 49 MW plan 1962-63 to 40 : 60 at the end of the Fifth Plan, 34 : 66 at the end of the Sixth Plan and 30 : 70 at the end of the Seventh Plan.**

Fast Breeder Reactor (FBR) which in addition to producing power and plutonium also yield uranium-233 from thorium. The third stage *reactors are to be based on the* thorium cycle to produce more uranium 233 for fueling additional breeder reactors.

The present installed capacity of nuclear power reactors in India

Nuclear Power Reactors In Operation

	Units	Capacity MWe
Tarapur (Maharashtra)	2	320
Rawatbhata (Rajasthan)	2	440
Kalpakkam (Tamil Nadu)	2	470
Narora (U.P.)	2	470
		1700

is 1700 MW. Excepting for the first two units at Tarapur, which are of the boiling water reacter (BWR) type, others are of the PHWR type, which constitute first stage of the programme. The country aims at establishing 10,000 MW of nuclear power generation capacity from PHWRs during the coming ten to fifteen years. In addition, two reactors of the PWR type of 1000 MW each are being set up at Kudankulam in Tamil Nadu.

The Nuclear Power Corporation of India Ltd. set up in 1987 is responsible for designing, constructing, commissioning and operating all nuclear power reactors in the country.

Private Sector Participation

Participation of private sector in power generation, transmission and distribution was allowed under the industrial policy and current electricity legislation. At present 4.2 per cent of the total generation capacity (2614 MW) in the country is in the private sector. The new policy aims at further encouraging greater participation of private sector in power generation. The incentives announced under the new policy include a Debt-Equity ratio of 4 : 1 from earlier 2 : 1, exemption *from MRTP clearance, single* window clearance attracting foreign investment with a hundred per cent equity participation allowed, return on capital revised to fifteen per cent from three per cent for State Electricity Boards and ten per cent for NTPC ; capitalisation of interest permitted in full as against only one per cent over bank rate and licence period of thirty years.

The promoters' contribution has been lowered to eleven per

> **Gas-based power stations are ideal for meeting peaking load requirements. These power stations have a short gestation period of 3-4 years and use a relatively non-polluting fuel source.**

cent. At least 60 per cent of outlay is envisaged to be from non-governmental sources including financial institutions. The private companies have also been allowed to sell electricity to Electricity Boards as well as directly to group of industries. It is anticipated that on the whole foreign companies would set up some 16,000 MW of capacity with an investment of Rs. 42,000 crore in near future. Companies coming in private or joint sector before December 12, 1993 would be treated with Pioneer status which will entitle them to special treatment and concessions including a guarantee by the Central Government for electricity dues payment under a tripartite agreement. □

The author is a freelance journalist

Energy Planning

SEVERAL expert bodies in the past, such as Energy Survey of India Committee (1965), the Fuel Policy Committee (1974), the Working Group on Energy Policy (1979) and the Advisory Board on Energy (1983-88), have emphasised the need for integrated long-term energy planning The Planning Commission has carried out studies on long-run sectoral energy demand as well as long-run energy supply system optimisation. However, the earlier Five Year Plans tended to reflect more of the short-term and medium-term concerns than the long-term policy imperatives in energy planning. Besides, the emphasis of the earlier plans has all along been on supply problems of the sector rather than on economy in the end-use of energy through conservation. During the Eighth Plan, importance will be given to long-term integrated planning with emphasis on energy end-use as well as efficient strategy of long-run energy supply. The studies of Planning Commission, as referred to above, need to be updated from time to time depending on the changes taking place in the internal and external environment and be used as basis for integrated energy planning.

Energy Strategy

Against the above background, it is desirable to adopt a long-term energy strategy which is consistent with sustainable development. Such a strategy should ensure that the highest priority is accorded to meeting fully the basic energy needs of the rural and the urban poor in the immediate future. It should also ensure gradual shif from non-renewable resources t renewable ones with increasin emphasis on deman management, conservation an efficiency. The short-term medium-term and long-tern priorities should accordingly be a follows :

Short-Term

1. Maximise returns fron the assets already create in the energy sector.
2. Initiate measures fo reducing technical losse in productior transportation and enc use of all forms of energy
3. Initiate action to reduc the energy intensity of th different energ consuming sectors of th economy and promot

Public Sector Outlay on Energy in VIII Plan
(Rs. crore at 1991-92 prices)

	Centre					
	Budget Support	IEBRS*	Total	States	UTs	Total
1.	2	3	4	5	6	7
Total Energy	**13136.00**	**53659.00**	**66795.00**	**47291.58**	**1474.51**	**115561.09**
1. Power	8902.00	22279.00	31181.00	46961.86	1445.88	79588.74
2. Petroleum	527.00	23473.00	24000.00	—	—	24000.00
3. Coal & Lignite	2600.00	7907.00	10507.00	—	—	10507.00
4. Non-conventional Sources of Energy	1107.00	—	1107.00	329.72	28.63	1465.35

* Internal and Extra Budgetary Resources.

conservation, demand management through appropriate organisational and fiscal policies.

4. Initiate steps for meeting fully the basic energy needs of the rural and the urban households, so as to reduce the existing inequities in energy use.
5. Maximise satisfaction of demand for energy from indigenous resources.

Medium-Term

6. Initiate steps towards progressive substitution of petroleum products by coal, lignite, natural gas and electricity so as to restrict the quantum of oil imports to the current level.
7. Initiate action for accelerated development of all renewable energy resources, especially the available hydro-electric potential.
8. Promote programmes to achieve self-reliance in the energy sector.
9. Promote R & D effort on decentralised energy technologies based on renewable resources.
10. Initiate appropriate organisational changes in the case of different energy sub-sectors consistent with the overall energy strategy.

Long-Term

11. Promote an energy supply system based largely on renewable sources of energy.
12. Promote technologies of production, transportation and end-use of energy that are environmentally benign and cost-efficient.

The Eighth Plan programme of energy development will be so oriented as to be consistent with this stretegy. □

Methodology For Rural Energy Planning

Srikant K. Panigrahi

In view of the fuelwood crisis and excessive deforestation in rural areas, the author stresses the need for developing suitable methodology for rural energy planning. However, in his opinion, decentralised planning should be resorted to for getting better results as the basic aim is to ensure more equitable allocation and efficient utilisation of existing resources.

THE management of energy systems in rural environments has emerged as one of the most significant challenges to the scientific understanding of researchers and organisational ability of planners in the recent years. The impact of energy related decision in rural areas has regional and national implications and requires policy interventions for integrated energy planning for the optimum utilization of natural resources. Although energy issues form only a part of the range of requirements for rural development but in many ways energy plays a very vital role in overall development in rural India.

Fuelwood crisis has necessitated search for non-conventional, cheaper but effective and efficient alternative sources of energy in rural areas. The problem has been further accentuated due to the fact that excessive deforestation is taking place in these areas for collection of fuelwood to meet local energy needs, which is increasingly becoming difficult due to extreme geographical and climatic conditions. This trend, if not reversed now, may lead to serious environmental problems in future.

Energy Planning

Centralised energy planning exercise cannot pay adequate attention to the variations in socio-economic and eco-cultural factors at micro level which influence the success of any intervention. Other advantages of decentralised energy planning are similar to that for development planning in general where it has been realised that better and more equitable allocation and utilisation of available resources in rural areas are more likely to be achieved through local level planning and implementation.

Since district is the focal point for administrative planning as well as implementation of development programmes in a State, decentralised energy planning exercise at district level becomes important and more meaningful.

Objectives

The basic aim of the rural energy planning would be optimal allocation and efficient utilization of existing resources (both conventional and non-conventional) through decentralised planning and implementations. So the major objectives would be :

(i) To assess the avilability of natural resources.

(ii) To assess the energy use pattern in different sectors of rural economy at microlevel.

(iii) To forecast energy demand at decentralised level and formulation of integrated energy development plans for a fixed time period and its implementation strategy.

(iv) Integration of energy plan with other development planning process of the district.

Salient Features

The salient features of energy planning exercise which specifically identifies the energy deficient areas requiring interventions by the planners are :

(a) Qualitative and quantitative estimation of energy demand and supply scenario ;

(b) Identification of technical and management option ; and

(c) Optimal utilisation of various energy sources.

Selection

A case study district is to be selected for district energy planning exercise based on following considerations :

Fuelwood crisis has necessitated search for non-conventional, cheaper but effective and efficient alternative sources of energy in rural areas. The problem has been further accentuated due to the fact that excessive deforestation is taking place in these areas for collection of fuelwood to meet local energy needs.

(1) Predominantly dependent on natural resources.

(2) Level of development of the district.

(3) Physical setting/remoteness where non-commercial fuels are viable alternatives.

Data Collection

After the selection of the district, the next step is to build a district profile based on secondary and primary data collection.

Secondary data collection : To understand the demographic, geographic, socio-economic and eco-cultural aspects of the district which have a direct or indirect influence on the energy system , extensive collection of secondary information should be undertaken from variety of sources at block, district, divisional, state and national level

The collection of Primary data should be carried out by undertaking field visits and using structured questionnaires. In household sector, a questionnarie based sample survey of households on random basis should be carried out to understand the consumption pattern and demand trends. The format, design and content of questionnaire and the sample should be finalised after taking into account the views of the government agencies, feed back from the beneficiaries and comments of the voluntary agencies. Related factors such as land use pattern, live stock population economic activities etc. should be studied in detail to analyze the present status and future trends in energy sector.

Various Components

A rural energy planning exercise at district level would consist of the following components :

1. Energy demand estimation and projection

2. Energy resource assessment.

3. Evaluation of energy technologies.

4. Study of development priorities.

Centralised energy planning exercise cannot pay adequate attention to the variations in socio-economic and eco-cultural factors at micro level which influence the success of any intervention.

5. Energy planning.

6. Management strategy for implementation.

Demand Estimation

A comperative study of past trends and present consumption pattern has to be undertaken to understand the dynamics of the energy flow at micro or village level. The objective of the consumption pattern analysis would be :

(i) To identify different end use and fuel used in the villages to build a fuel matrix.

(ii) To measure/estimate end use efficiencies to arrive at energy consumption norms for different end uses.

(iii) To identify parameters that effect the pattern and level of energy consumption.

This exercise consists of identification and categorisation of energy demand by both sector and end usewise followed by choice of techniques for demand analysis depending upon the level and kind of data available or required to be collected.

Energy consumption informations help not only to estimate energy demand, but also help to monitor the impacts of interventions in rural economy.

From consumption data, demand projection are to be made based on population increase and expected increase in the level of consumption and perception of the people in prioritising their energy demand.

Resource Assessment

A study of the energy resources-renewables as well as non-renewables-has to be conducted to prepare an inventory of energy resources in order to assess the extent of their individual availabilities and geographical spread over long term basis. Since in the rural areas, most of the local energy needs are still met from the biofuels, it is necessary to make an estimate of the biomass resources avilable in the district Further, social and economic costs of renewable and non-renewable energy sources need to be examined in detail to understand the issue of market intervention capabilities of respective resources and technologies alongwith the identification of constraints on using various options Assessment of energy supply from commercial as well as non-commercial sector is estimated.

(a) Initially biomass resource assessment is done through all three sources (i) woody biomass (ii) animal waste and (iii) crop residues.

(b) Supply of commercial fuels kerosene, electricity, coal, petrol, diesel, LPG, etc can be studied through a structured interviews with concerned officials For electricity, secondary data on rural electrification is to be used to study the present supply system and its management

Evaluation

After energy demand estimation and energy resource assessment, the gap between the supply and demand of energy can be established. In order to arrive at specific suggestion a techno-economic feasibility study will be required for different technologies ·

1. Techno-economic-analysis cover the (i) energy from commercial sources (ii) non-commercial sources and (iii) renewable energy technologies (RETs)

2. Renewable Energy Technologies includes (i) Biogas (ii) Biomass gasifier (iii) Solar system (iv) Wind energy (v) Electricity (vi) Smokeless chulhas (vii) Solar thermal (viii) Photovoltaic etc

3. Questions of feasibility of technological introduction of (i) mini/micro hydels (ii) hydrams (iii) SPV lighting (iv) SPV water pumps and (v) Natural gas are also to be examined

Development Priorities

Study of development priorities as perceived by both, the government and public, or beneficiaries for various sectors such as agriculture, animal husbandry, industries, education, transportation and employment is very important for the formulation of district energy plan It is very necessary to integrate suggested energy interventions into the overall development strategy. Otherwise the divergence of perception between the people and government officials on the priorities of the region may lead to failure of development programmes Therefore, efforts should be made to distinguish between the development priorities of the official government organisations and those expressed by the people who stand to benefit by intervention in the energy plan. This distinction would help in prioritising the interventions and in deciding the rate at which an intervention can be promoted

The development of rural energy demand supply scenario would lead to the preparation of a perspective energy plan for the district. Area specific supply demand balancing exercise would be carried out to evolve appropriate energy strategies best suited to the local conditions.

Energy planning process involves following stages :

1. Development linked energy interventions.

2. Improve present productivity of existing natural resources.

3. Increase the present supply of commercial energy resources.

4. Increase renewable energy resources (after area-wise techno-economic analysis).

Management And Implementation

A methodological framework is to be developed to implement the rural energy plan in a specified time schedule. Attempts should be made to integrate/strengthen the existing administrative set up at the district level wherever feasible with the proposed institutional structure to implement the integrated energy plan. Active involvement of the people (beneficiaries) at planning, management and implementation levels should be ensured right in the beginning of the integrated energy plan exercise. NGOS or voluntary agenies at the State and district levels should be identified and their role incorporated in the management strategies. A procedure for monitoring and feedback should also be designed which could enable the administration to take corrective measures in time wherever required and also lead to the generation of relevent data for future energy planning exercises.

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Building Up People's Institution

Dr. Shrawan Kumar Singh

WE have adopted democratic modern institutions for the governance of the society at the national level. But we have to understand that the ultimate strength comes from the "will of the people", and from a sense of direct participation of the people in their own immediate affair. We have neglected the self-supporting, self-governing cellular institutions at small community or village level. Their powers have been subsumed by the larger political institutions like legislature and Parliament and by the big bureaucracy born within the civil service structure. The primary task should be to build up and strengthen the institutions with which people are directly involved. The small community and village level institutions could be regarded as the cellular institutions, of which the entire body of the nation is built.

Our experience of development planning has shown that developmental activities undertaken with people's active participation have a greater chance of success and can also be more cost-effective as compared to the development activities undertaken by the Government where people become passive observers. The non-involvement of people has also led to the implantation in them of an attitude of total dependence on government for everything so that there has been a lack of effort by the people and lack of accountability to the people in the system of administering developmental schemes.

In the Eighth Five Year Plan (1992-97), it has been thought necessary to make development a people's movement. People's initiative and participation must become the key element in the whole process of development. A lot in the area of education (especially literacy), health, family planning, land improvement, efficient land use, minor irrigation, watershed management, recovery of wastelands, afforestation, animal husbandry, dairy, fisheries and sericulture etc. can be achieved by creating people's institutions accountable to the community. Therefore, the focus of attention will be on developing multiple institutional options for improving the delivery systems by using the vast potential of the voluntary sector.

As such, the importance of decentralised local level planning and people's participation has been recognised. Yet, results achieved so far have not been very impressive. In the Eighth Plan, therefore, a new direction is being given to achieve these objectives. So far, the approach to people's participation consisted in programme-based strategies. In addition to such programmes, the Planning Commission has now worked out institutional strategies which will mean creating or strengthening various people's institutions at the district, block and village levels so that they synthesise the purpose of investment envisaged in the Plan with optimisation of benefits at the grass-roots level by relating these programmes to the needs of people. This can only be achieved through the collective wisdom of the community combined with the latest know-how available. This work is primarily to be undertaken through NGOs with the support of Government.

The role of the government should be to facilitate the process of people's involvement in developmental activities by creating the right type of institutional infrastructure, particularly in rural areas. These institutions are very weak, particularly in those States where they are needed the most for bringing about an improvement in the socio-demographic indicators. Encouraging and strengthening of the Panchayati Raj institutions, reorientation and integration of all the village-level programmes under the charge of the Panchayati Raj institutions, and support of local economic activities are some of the steps which the government must earnestly initiate. A genuine push towards decentralisation and people's participation has become necessary.

Historic Attempt

In the winter session of 1992, Parliament approved the historic Panchayati Raj and Nagarpalika Bills, providing for decentralisation of

power down to the village level. The 72nd Constitution Amendment Bill [shall be called the Constitution (seventythird Amendment) Act, 1992] envisages the *"Gram Sabha"* as the foundation of the Panchayati Raj system to perform functions and powers entrusted to it by the State legislatures. The bill visualises a three-tier Panchayati Raj system at the village, intermediate and district levels. Small States with population below twenty lakh have been given the option not to constitute Panchayat at the intermediate level. There is a provision for direct elections to all seats in Panchayats and reservation of seats for Scheduled Castes and Scheduled Tribes and fixing of tenure of five years for Panchayats.

The 73rd Constitution Amendment Bill [shall be called the Constitution (Seventyfourth Amendment) Act, 1992] provides for, among other things, constitution of three types of municipalities depending upon the size and area and reservation of seats in every municipality for Scheduled Castes and Scheduled Tribes, women and backward classes. The 72nd and 73rd amendment Bills have added a new part and the eleventh and the twelfth schedules relating to powers, authority and responsibilities of Panchayats and urban local bodies in the Constitution.

It also provides for devolution of powers and responsibilities upon the municipalities by the State Legislatures with respect to preparation of Plan for economic development and levy of taxes and duties by municipalities and review of the finances of the municipalities.

The reservations for Scheduled Castes, Scheduled Tribes and women in the Bills are welcome steps. The new enactment is going to bring about revolutionary change in our extant democratic system.

Thus, the Bill aims to empower the Panchayati Raj System with legal status, regular elections, and assures a certain financial solvency. In effect, it keeps the Panchayati Raj Institutions out of the purview of the State Governments, which in the past had indiscriminately dismissed Panchayats and also starved them of funds.

With the passage of Panchayati Raj Bill as many as over one lakh women, including those belonging to Scheduled Castes and Scheduled Tribes, will become panchas and sarpachas when the Act comes into force. The State Governments will have discretion whether to hold elections to the posts of sarpanchas, Block Samiti Chairmen and Zila Parishads directly or indirectly. This provision had to be incorported because some political parties were not in favour of holding direct elections to the intermediary offices. Each village will have a Gram Panchayat which will exercise such powers and perform such functions at the village level as the Legislature of a State may provide by law. Panchayats will be cosntituted in every State at the village, intermediate and district levels, thus bringing about uniformity in the Panchayati Raj structure. However, the States having a population not exceeding 20 lakh have been given the option of not having any Panchayat at the intermediate level. Elections in respect of all the members to Panchayats at all levels will be direct, the clections in respect of the post of chairpersons at the intermediate and district levels will be indirect. The mode of elections of chairperson to the village level has been left to the State Governments to decide. Reservation of seats for SCs/STs has been provided for in proportion to their population at each level. Not less than one-third of the total membership has been reserved for women and these seats may be allotted by rotation to different constituencies in a Panchayat. Members of Parliament, MLAs and MLCs are to be given representation at the intermediate and district level Panchayati Raj Institutions with full voting rights. The elections to the local bodies are to be conducted by an independent State Election Commission.

Impact

This is a legislation of far reaching impact providing for constitutional status to the Panchayati Raj Institutions and urban local bodies. This would esure devolution of power to the grass-root level. The legislation is claimed historic as it would make major structural changes in order to restore rightful place of the municipalities as democratic units in the present system of governance. This would also give decision making powers to the people at the grass-root level. The State legislature may provide for reservation in favour of backward classes. Municipalities will have a five year term and re-elections will be required to be conducted within a period of six months in case of their dissolution. The municipalities would be endowed with such power as might be necessary to enable them to work as institutions of self-government and also devolve powers and responsibilities upon them by the State legislatures for preparation of plans and implemention of development schemes.

Both these Bills have had a chequered history in Parliament. The Rajiv Gandhi Government brought them first in 1989, but they failed to get through the Rajya Sabha. Later in 1991, these bills were referred to a joint select committee after they were introduced in the Lok Sabha. The reservation of one-third seats for women was a revolutionary step towards greater involvement of women to exercise their political rights in a democractic manner at grass root level. The passing of the Panchayti Raj and Nagarpalika Bills should provide a long delayed

impetus to the process of decentralisation The fact that none voted against either bill is an indication of just how substantially the political situation has changed over the last three years There are still some aspects of the Bill that some political parties will be unhappy about The efforts to impose a uniform three-tier Panchayati Raj system is bound to irk the States that had implemented a two-tier system with some success. But clearly all the major political parties have decided that such adjustments are a fair price to pay for the positive aspects of the bills, particularly the emphasis on regular elections and the financial solvency of local bodies.

State Finance Commission

The legislature of a State may by law authorise levy of taxes and duties by municipalities, assigning of such taxes and duties to municipalities by State Goverment and for making grants-in-aid by the State to them as may be provided in the State law Studies on municipal finances in India have shown that the system of devolution of funds to the urban local bodies has been by and large *ad hoc* and irregular. As such, the Bill also provides for the constitution of a **State Finance Commission** by each State. These commissions are supposed to review the financial position of municipalities and make recommendations regarding (i) the principles that should govern the determination of taxes, duties and fees which may be assigned to or appropriated by the municipalities, (ii) distribution or sharing of taxes and duties, (iii) grants-in-aid to the municipalities from the consolidated fund of the State. At present, the practice of fiscal transfers to the municipalities vary from State to State.

The Commission will also suggest measures necessary to augment the consolidated fund of the State to supplement the resources of the Panchayats in the State. Thus, larger amount of assured funds will flow to the Panchayati Raj bodies, which in turn will strengthen peoples' involvement in the planning process.

It is expected that the proposed Finance Commission would concentrate on provision of adequate fund to enable the Panchayati Raj institutions to realise their objectives in a more effective manner

Local bodies and municipal corporations are poverbially bankrupt all over the world. The story is no different in India. The demands of the citizens increase even as the resources of urban municipal corporation dwindle. The search for funds to the extent civic amenities to the citizen has been the main avocation of municipal authorities from times immemorial.

One of the most welcome proposals is that of appointing Finance Commissions for both rural and urban local Government bodies. These Commissions will lay down for a specific period the basis of the transfer of resources from the State Governments (and presumably from the Central Government also) to the rural Panchayats and urban municipalities The mayors of the larger cities have for a long time been demanding from the Central Finance Commissions a specified share of income tax and other tax receipts The Constitution does not now permit this and the Central Finance Commissions are helpless. As long as the right to appoint the local bodies Finance Commission is fully vested in the State Governments, they should not have any ground to oppose the proposal. However, the proposed Finance Commission for local bodies are likely to face many difficulties. In this context, Professor Bhabatosh Datta has rightly pointed out that the municipal budgets are a farce. They are generally presented, not, as should be done, before the financial year starts, but towards the end of the year. The form of presentation is clumsy. The accounts are not audited for years and replies are not given to audit objections. This applies to almost all municiaplities. It can be imagined what the difficulties will be of the proposed Finance Commission for rural bodies to estimate the revenue deficits of some 3500 units. It is true that the Panchayats' own revenues are negligible. One major problem for all local bodies is that of meeting the operational and maintenance expenditure of the completed plan projects handed over to them. If the proposals regarding the local bodies Finance Commission have to have any operational meaning, they must be appointed at regular predetermined intervals. And in the meantime, there should be a continuous collection of data, so that such new Finance Commission does not have to begin from a clean slate. Care has also to be taken about the timings of the appointments of the new Commissions. Ideally, the reports of these Commissions should be available immediately before the next Central Finance Commission begins its work, or at least before the State Government submits its projection for the coming period. "The new measures will create many political problems, but the one sound proposal in them regarding Finance Commissions should not be allowed to fall through. There will be difficulties, but these can be overcome only when there is a start."

Varieties

There is wide diversity in the number of tiers of Panchayats existing in different States. Majority of the bigger States have three-tier system. Even where there is a three-tier system, there are structural differences in States like Karnataka, Tamil Nadu and Assam. However, there are States like Haryana, Manipur, Kerala and Sikkim and the Union Territory of Lakshadweep with only two-tier system adopted by

them. Still there are some States like Goa, Jammu & Kashmir and Tripura and the Union Territories like Andaman and Nicobar Islands and Dadra & Nagar Haveli, etc. which follow only one tier system. A common and uniform three-tier system of Panchayats may be adopted throughout the coutnry.

With this legislative support, the process of decentralisation would gather momentum. Regular elections should make those elected to the local bodies more sensitive to local opinion. Protection against arbitrary action by the State Governments should help the local bodies take a more independent view of the requirements of their constituents. And an improvement in the financial position of these bodies should enable them to directly meet local requirements.

But the experience of decentralisation in several States suggests that the effective transfer of power to Panchayati Raj Institutions throws up problems of its own. Karnataka's experiment in the eighties reflected a marked preference among *Mandal Panchayats* to concentrate on activities where the results are visible in the short term, such as the lighting of road. Such expenditure has sometimes been at the cost of investment in more essential areas like improving infrastructure in agriculture. A preoccupation with short term considerations could also be a major impediment to the effective functioning of urban local bodies. Such considerations have often led to the complete neglect of urban planning. The task before the Panchayati Raj Institutions will be further complicated by having to function in an atmosphere of liberalisation. With agricultural growth no longer merely a matter of investing public funds, the Panchayats will have to explore alternative means of financing investment in rural infrastructure. It is, therefore, essential to integrate the process of decentralisation with long term strategies for development. Such an integration will require, among other things, a greater awareness among panchayat members of the policy options before them. "It must be emphasised that the 72nd and 73rd Constitution Amendment Bills are important milestones in the process of decentralisation, but more than legislation is required for the creation of effective local boides."

Toothless

Some people have even characterised the two amendments as "toothless". Decentralisation without restructuring power may mean empowering the local elite rather than the local people. When we have a very feudal power structure, decentralisation results in less power to the poor than more. Unless the "balance of forces" in the rural areas were changed the Panchayati Raj features would be misused by the rural rich. Decentralisation has to be accompanied by a major reform of the power structures.

But the point to be borne in mind is that the States, which are equally jealous in guarding their own spheres of power and authority have been a major source of resistance to proposals that they saw as too radical for their comfort. However, this does not mean that the imperfections should be glossed over or the ideals be lost sight of. But what has to be kept in view is that however perfect a draft piece of legislation may look on paper, it is a different game altogether when it comes to implementing such a massive job of social engineering in a society as varigated and complex as ours. "The two enactments should, therefore, be seen as starting points of a learning process that can only happen gradually and with experience over a period of time. It may be worthwhile to create a mechanism for independently monitoring the progress and pattern of implementation once the amendments have been put on the statute book. That should satisfy the sceptics and also help to improve the instruments of social transformation by decentralisation at the village level as envisaged in Article 40 (Directive Principles) of the Constitution."

In the final analysis one is tempted to conclude that the Constitution (Seventysecond & Seventythird Amendment) Bills dealing with Panchayati Raj Institutions have been born out of a feeling that these institutions, so necessary for effective governance of our country, have not acquired the legal, administrative and political stature due to them. It was, therefore felt that in the Constitution itself provision should be made with regard to some basic features of Panchayati Raj Institutions in the country so that those aspects will be taken out of the purview of day to day political and administrative agencies in the States. The Bills are essentially an instrument of empowerment of Panchayati Raj Institutions to enable them to function as vibrant democratic institutions of our policy.

Two schedules (eleventh & twelfth) have been added to the Constitution which give an idea of subjects over which Panchayats and Nagarpalika institutions will have jurisdictions.

[Eleventh Schedule

1. Agriculture, including agricultural extension, 2. Land improvement, implementation of land reforms, land consolidation and soil conservation, 3. Minor irrigation, water management and watershed development, 4. Animal husbandry, dairying and poultry, 5. Fisheries, 6. Social forestry and farm forestry, 7. Minor forest produce, 8, Small scale industries, including food processing industries, 9. Khadi,

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Decentralised Development

S.C. Vajpeyi

DURING the past two decades successive Governments both at the Centre and in various States have attempted to decentralise development planning and management responsibilities. Decentralisation has taken a number of forms—decentralisation of function within the central bureaucracy, delegation to semi-autonomous or quasi-public corporations,devolution to local bodies and the transfer of functions to non-governmental organisations (NGO's). The results have been mixed.

Decentralisation is a means to achieve improvements in resource distribution, local participation, extension of public services in rural areas, project identification and implementation, employment generation and poverty alleviation programmes. Its main aims are :

- to reduce overload and congestion in the channels of administration ;
- to reduce delays and administrative indifference ; and
- to improve Governments' responsiveness to the public and increase the quantity and quality of services.

Greater participation in development planning and management provides national unity by providing various regions a greater say in planning and decision making and thereby increasing their stake in maintaining political stability.

Studies made in the field reveal that the following positive results have been achieved in varying measure :

- People living in rural and tribal areas get larger access to Central Goverment resources and institutions :
- Public participation has increased in exercising pressure on Central agencies for higher allocations ;
- Administrative, political and technical skills have developed at local levels ;
- Regional and local level planning has come to be recognised as an important componant of national development strategy.

The main factors which affect the success or failure of decentralisation process are :

- The degree to which decentralisation gets administrative and political support.
- the degree to which the dominant behaviour attitudes and culture are conducive to decentralised decision-making and management
- the degree to which policies and programmes are appropriately designed and organised to promote decentralised decision making and management ; and
- the degree to which adequate financial, human and physical resources are made available to organisations, to which responsibilities are transferred.

Leaving aside the experience of some of the developing countries in Latin America, Africa and Asia let us now turn to the Indian experiment. The social inequalities refocus our attention to the village. Enormous managerial talent exists at this level to look after food production, primary education, health care and sanitation, rural water supply and village industries. The new forces at the base of our society are increasingly asserting themselves demanding the right to make decisions which shape their lives and environment. Election at the Central, State and other levels have made them politically conscious and rapid degradation of environment and increase in price levels have made life increasingly a quest for survival. The electronic media now reaching out to the vast majority, promoting a consumer culture has led to rising expectations.

Pursuant to Article 40 of the Constitution, the process of Community Development Programme was the first step initiated in 1952 in terms of the First Plan document. The ideal was not achieved for want of public participation. Therefore, this was the subject matter of study of successive

study teams, namely the Balwant Rai Mehta study team (1957), the Ashoka Mehta Committee (1978), the G.V.K. Rao Committee (1985) and the L.M. Singhvi Committee (1986).

The recommendations of the Balwant Rai Mehta Committee were far reaching and were implemented successfully at the District level in States like Maharashtra and Gujarat in the late 1960s. In course of time, however, it had to make room for the administration. And thus the Panchayats were implementing schemes like Integrated Rural Development Programme (IRDP), NREP and Rural Labour Employment Guarantee Programme (RLEGP). The form remained, but not the substance of genuine decentralised planning.

A second revival in the late 70s and 80s was at the initative of the Governments in West Bengal (1978), Karnataka (1983) and Tripura (1985) The experience of West Bengal and Karnataka is useful for drawing certain inferences which may be more or less relevant for other States as well.

The back-drop of establishment of Panchayati Raj will be incomplete without the mention of the Constitution (64th Amendment) Bill which lays down constitutional provisions for the introduction of the Panchayat system in almost all States. The Bill did evoke considerable debate and discussion. It had given the country a unique opportunity to reconsider the lines of development of our social polity.

One noteworthy feature which generated all round interest was that the Central funding must concentrate on investments for infrastructure on power, major irrigation, transport and the like with a much larger contribution by the Centre to the States for such investments than at present. Poverty alleviation and minimum needs programme should be the first charge on the resources of the State, the residue supplemented by Central aid being applied to infrastructure. Such a change in the pattern of assistance would also reinforce the change in the planning progress and more importantly, eliminate in one stroke the need for CAG's men to wander from village to village auditing Centrally sponsored schemes. The Panchayat is the prime institution of the political democratic system. It will promote self reliance in economy, self-dependence, self-initiative, cooperation and goodwill in the rural society. Participating democracy can take shape through this institution alone. But decentralisation is not a 'quickfix' for the administrative, political or economic problems. It has to be promoted and nurtured carefully, cautiously and after taking note of various experiments in this field both in India and also some of the developing countries. □

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village and cottage industries, 10. Rural housing 11. Drinking water, 12 Fuel and fodder, 13. Road, culverts, bridges, ferries, waterways and other means of communication, 14. Rural electrification, including distribution of electricity, 15. Non-conventional energy sources, 16. Poverty alleviation programme, 17 Education, including primary and secondary schools, 18 Technical training and vocational education, 19. Adult and non-formal education, 20. Libraries, 21. Cultural activities, 22. Markets and fairs, 23 Health and sanitation, including hospitals, primary health centres and dispensaris, 24. Family welfare, 25. Women and child development, 26. Social welfare, including welfare of the handicapped and mentally retarded, 27. Welfare of the weaker sections, and in particular, of the Scheduled Castes and the Scheduled Tribes, 28 Public distribution system, 29 Maintenance of community assets.

Twelfth Schedule

1. Urban planning including town planning, 2. Regulation of land-use and construction of buildings, 3. Planning for economic and social development, 4. Road and bridges, 5. Water supply for domestic, industrial and commercial purposes, 6. Public health, sanitation conservancy and solid waste management, 7 Fire services, 8 Urban forestry, protection of the environment and promtion of ecological aspects, 9. Safeguarding the interest of weaker sections of society, including the handicapped and mentally retarded, 10. Slum improvement and upgradation, 11. Urban poverty alleviation, 12. Provision of urban amenities and facilities such as parks, gardens, playgrounds, 13. Promotion of cultural, educational and aesthetic aspects, 14. Burials and burial grounds, ; cremations, cremation grounds and electric crematoriums, 15. Cattle pounds ; prevention of cruelty of animals, 16. Vital statistics including registration of births and deaths, 17. Public amenities including street lighting, parking lots, bus stops and public covneniences, 18. Regulation of slaughter houses and tanneries.] □

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Rural-Urban Differentials In The Industrial Sector

Dr. K.C. Taneja

INDUSTRIALISATION is one of the key elements in economic development. Industrialisation in India has led to several structural changes in rural sector in terms of industrial pattern and levels of regional development. Keeping in view the fact that around seventy three per cent of our population still lives in the rural areas, it is quite crucial that industrial set up is examined in the rural areas and assessed as to what extent it differs from the industrial pattern in the urban areas. Accordingly, an attempt has been made in the present study to examine the rural-urban dispersal in the industrial set up and the role of *industrialisation in the rural* development.

The Annual Survey of Industries is the principal source of industrial statistics not affected by seasonal variation. Accordingly, the data used have been taken from the Annual Survey of Industries (ASI). The study has been restricted to the year 1987-88. It is for the first time that the ASI data have been tabulated and published giving the rural-urban break up, if only at the all-India level for the major industry groups.

Further, the study has been restricted to the organised sector in view of non-availability of data in respect of unorganised sector on a uniform and continuing basis.

Table 1 presents rural-urban dispersal of the manufacturing sector in the total industrial sector in respect of key characteristics at aggregate level

As may be seen from Table 1 that although in the total industrial sector, manufacturing sector forms quite a large proportion (95.89) in respect of number of establishments, the 'Other than Manufacturing' Sector is also significant in respect of some of the characteristics, like labour and related factors. Its share is also quite significant in respect of Fixed Capital (42.78), Invested Capital (32.95). In respect of future investment like Gross Capital Formation (31.28), its share is quite large.

Close examination of the sector (other than Manufacturing) revealed that 'Electricity Generation' is its major part and being an extremely essential infrastructure of industrial activity, has quite a significant share

Table 1

Rural-Urban Dispersal of Key Characteristics of the Manufacturing and other than Manufacturing Sectors

S No.	Characteristics	Percentage Share in the total Industrial Sector of the					
		Manufacturing			Other than Mfg.		
		Rural	Urban	Total	Rural	Urban	Total
1	2	3	4	5	6	7	8
1.	Number of Factories	97 36	95.36	95 89	2 64	4.64	4.11
2	Fixed Capital	91.43	47.84	57 82	8.57	52.16	42.78
3	Invested Capital	87 18	61 05	67 05	12.82	38 95	32.95
4.	Number of Employees	97 88	82.34	86 16	2 12	17 65	13 84
5.	Total Empoluments	96 59	73 22	82 21	3.41	20.79	17.79
6	Value of Output	96 23	87.41	89.43	3.78	12.60	10.55
7	Value Added	95 53	81 31	84.02	0.47	18.70	15.98
8	Gross Capital Formation	89 30	59.30	68.72	10 70	40.63	31.28

Table 2.

Rural-Urban Distribution of the Key Characteristics in Manufacturing and Electricity Generation Activity

S.No.	Characteristics	Manufacturing Activity		Electricity Generation Activity		Total Industrial Activity	
		Rural	Urban	Rural	Urban	Rural	Urban
1	2	3	4	5	6	7	8
1.	Number of Units	26.79	73.21	34.86	65.14	26.39	73.61
2.	Fixed Capital	36.22	63.78	5.91	94.09	22.91	77.09
3.	Invested Capital	29.90	70.10	5.90	94.10	22.99	77.09
4.	Number of Employees	27.92	72.08	1.87	98.13	24.57	75.43
5.	Total Emoluments	20.28	79.72	2.27	97.73	17.26	82.74
6.	Value of Output	24.72	75.28	7.66	92.34	22.98	77.02
7.	Value Added	24 72	75.28	8.69	91.31	22.20	77.80
8.	Gross Capital Formation	40.57	59.43	10.11	89.89	31.22	68.78

in the capital structure of the entire industrial sector. The rural urban spreads of the 'Manufacturing' sector and 'Electricity Generation' have also, therefore, been examined in respect of the characteristics studied in Table 1 and are presented in Table 2.

A significant pattern which emerges from the Table 2 is that in the manufacturing sector, except the share of salaries and wages to the employees and workers, which is a little above 20 per cent, rural share in respect of all other characteristics like number of workers, capital etc is 25 per cent and above. The phenomenon which merits a specific mention is that in respect of investment in capital both, present and future share of the rural sector in the manufacturing activity is very high ; this being 36.2% in the case of Fixed Capital and 41.0% in the case of Gross Capital Formation.

As rural electricity function mostly concerns itself with transmission and distribution of electricity, it is only to be expected that Gross Capital Formation 10.11, though if highest, could be considerably less in rural areas than in urban areas. If data on types of capital invested or to be invested are also available, it could be possible to say in the case of 'electricity' whether the infrastructure being generated in rural areas is progressing rapidly or otherwise towards its saturation point.

Consideration like these necessitate a closer examination of the industrial activities and their rural-urban distribution. Detailed examination shows that their share varies from characteristic to characteristic. For example in respect of number of units, Food Industry Constitutes the largest part (17.87% : 29.93% rural, 13.55% urban) in the total industrial sector.

If we view it from the two principal inputs namely Capital and Labour, Basic metal industry constitutes the largest share of Fixed Capital ; this being 13 09 [12.57(R), 13.24 (U)] for the total industrial sector. So far share of labour in the entire industrial sector is concerned, Food industry comprises the maximum (13.11) followed closely by the cotton textile industry (12.12).

As regards the rural-urban distribution it has been observed that quite a significant proportion—more than 30% of the labour in the entire industrial sector in rural area is engaged in 'Food Industry'. Similar phenomenon has been observed in respect of 'gross output' and 'value added'. Food and Chemical industries emerge the key industries.

Keeping in view the significant contributions of Food, Chemicals, Cotton Textile, Basic metal and Non-metallic industries in the labour and capital, an attempt has been made to study in depth Rural-Urban break up of the key characeristics pertaining to these industries. Salient features are summarised as under :

Food Product

Food Product Industry, having largest share (17.87%) in the Industrial Sector, so far as location of industrial units is concerned, is rural oriented.

It comprises 29.93 per cent share of the total industrial sector as compared to 13.55 per cent share of the urban area in the entire urban industrial structure. Similarly in respect of total output in the industrial sector, the share of rural area is quite high. This is 23.11% that is more than one fifth of the total output in the entire rural industrial sector. With regard to employment of workers this industry has the largest share (30.53%) in the rural area, thus indicating that it is quite an employment oriented activity and as such is expected to be quite useful for the economic development of rual areas.

Another important feature which merits specific mention is that in respect of capital too, food group industry has, during 1987-88 about 13% share of the capital invested in

the rural area as compared to industry's share (13.57%) in the total urban industrial structure. Fixed Capital and Gross Capital Formation conform the same trend. 'Wages to Workers' also comprises quite a large proportion (19.86%) as compared to its corresponding urban equivalent (4.25%) in the entire industrial sector. It is also worthwhile to mention that in the total value of output of Food Products during 1987-88, the share of rural area is 39 per cent as compared to 61 per cent share of the urban area. However, in the total 'value added', the industrial units located in the rural area are contributing about 52 per cent as against 48 per cent contribution from the urban area.

From the above appraisal, it may thus be inferred that Food Product Industry is not only heavily concentrated in the rural area but has also the potentialities for further contribution to the Industrial Sector in respect of both the key factors namely Capital and Labour.

Chemical & Chemical Products

An interesting feature which emerges from the study of the characteristics is that whereas share of the industry both in respect of number of factories and workers is a little above 6% of the entire industrial structure, Fixed Capital share is 10% of that of the entire industrial sector. Similarly, the shares in respect of Invested Capital, Gross Capital Formation exceed 11% in all the three cases.

Another interesting phenomenon which emerges from the study is that Capital (Fixed/Invested) and Gross Capital Formation is higher in the case of rural areas as compared to the urban areas ; share of all these in the rural areas being more than double the urban equivalent. Similarly the rural area is contributing about 32 per cent in the total 'value added' as compared to 30 per cent of its share in the total 'value of output' while the share of urban area in the total value added and output is 68 per cent and 70 per cent respectively. It shows that rural area is contributing more in the total value added as compared to its share in the total value of output. In the urban area the position is reverse. From the above brief apparaisal it may be observed that chemical industry could be also reasonably concluded as rural-oriented in respect of these characteristics.

Non-Metal Industry

The total share of the industry, so far as industrial units is concerned is 8.49%. Share of workers is 5.77%, of capital is 6.51% and that of value added is 4.45%. The significant feature which needs highlighting is that in respect of all the key characteristics examined in the Study, the share of this industry in rural areas is 3-4 times higher than its share in urban areas. Non-metal industry also thus appears to be quite a rural oriented industry.

Cotton Textiles

Cotton Textile, being a traditional industry also reflects that except in respect of number of workers, percentage share of all other characteristics relating to capital, output, and value added is higher in the rural areas than in the urban areas. It has thus the potential of expanding in rural areas since 7.06% of the total units located in the rural area belong to the Cotton Textile industry as compared to 6.53% in the urban area.

Basic Metal Industry

Significant features which emerge are that although the percentage share of the industrial units as well as workers in the rural area is quite lower as compared to the urban areas, shares of the fixed capital as well as invested capital are of the same order (13%) and in respect of Gross Capital Formation, these shares are of much higher order than in urban areas ; these being 18.69% in the rural area and 12.49 of the urban industrial units.

Machinery

The industry is an urban-orient industry. It has as high as 8.90% urban share of the entire industri sector and is about 3 times the sha (3.20%) of the rural. The 'Machiner industry is an urban oriented activity the percentage share of the Fix Capital as also of labour is of t same order in the rural locate industrial units ; these shares bei 2.25% and 2.27% respectivel Percentage share of the value add of this industry to the entire industri sector is 7.27 and is almost double t corresponding value of the rur sector.

Electrical Machinery

The industry being modern a urban consumer-oriented has urb concentration. However, the aspe which merits special mention is th percentage share of the fixed capi in both the cases is of the san order ; these being 2.25% and 2.60 respectively in the rural and urb areas.

Transport Equipment

In this industry too, althou percentage share of the industri units and of workers is less than t half as compared to the urban secto share of all items related to capital higher in the industrial units locate in the rural areas. For example, sha of Fixed Capital in rural areas 4.41% as compared to 3.94% of t industrial units in the urban areas.

Electricity Generation

This is both an infrastructur facility as also key activity pertainin to the industrial sector and highl capital intensive. Althoug percentage share of the electrici generation units in the rural area higher (0.23%) than that in the urba area, share of all other characteristi pertaining to capital, labour and oth related aspects is significantly high in the case of urban units. Althoug

percentage share of the workers to the total industrial sector is only 9.88% ; Fixed Capital share is as high as 43.23%.

It can be reasonably inferred that of the 22 major industry groups studied, major industries like food products deserve special attention for establishment and improvement in the rural areas as it would give quite a fillup to the rural class which is quite an important objective of the Planners and Policy makers.

Examination of data of the various industries at the aggregate level of key factors of production reveal the pattern of industrial set up, i.e. whether an industry is labour intensive or capital intensive and as to how it is spread in the rural and urban areas. It is, however, felt that it would be much more meaningful and rewarding if productivity is also examined. Accordingly, an approach through structural ratios and technical coefficients indicating productivity of labour and capital has also been attempted.

With regard to examining the productivity of labour, we can have 'value added' and or 'output per unit of labour'. As the personnel management is also quite an essential ingredient of the efficiency of the labour productivity, by considering 'value added and or output per employee' may also be desirable.

Keeping into consideration the various aspects, specially the difficulty in identifying separately the role of the capital and labour, the structural ratios and technical co-efficients in respect of 17 characteristics, for example, wages per worker—an incentive to increase productivity—and the like have also been worked out and are presented in Table 3 in respect of the manufacturing sector and the entire industrial sector separately for both rural and urban location.

Table 3.

Rural-Uban Dispersal of Structural Ratios and Technical Co-efficients

S No.	Structural Ratio Technical Coefficient	Manufacturing Sector R	U	T	Industrial Sector R	U	T
1	2	3	4	5	6	7	8
A. Capital Productivity And Other Related Indicators							
1.	Fixed Capital per employee (Rs in Lakhs')	0 88	0.60	0 68	0.94	1.03	1.01
2	Fixed Capital per Factory	59 94	39.27	44 81	66 40	80.11	76.49
3.	Fixed Capital per unit of output	0.48	0.28	0.33	0.51	0.51	0 51
B. Labour Productivity And Other Related Indicators							
4	Output per worker (Rs. Lakhs)	2.25	2 74	2.60	2.29	2.63	2.54
5	Value Added per worker (Rs. Lakhs)	0.47	0 58	0 55	0.50	0.60	0.57
6.	Value Added per Factory (Rs. Lakhs)	27.25	30 38	29.54	28.37	35.63	33.71
7	Value Added per unit of output	0 16	0 18	0 17	0.16	0.19	0.18
C. Other Related Indicators							
8.	Wages per worker (Rs.)	9892	15736	14063	10039	16346	14738
9.	Emoluments per Employee	12534	19086	17257	12702	19840	18086
10.	Output per unit of input	1.27	1.27	1.27	1.28	1.29	1.29
11.	Workers per Factory	57.53	52.50	53.85	57.10	59.80	59.08
12.	Employee per Factory	71.05	67 14	68.17	70.67	77.76	75.85
13	Net Value Added per unit of emolument	2.29	1.99	2.05	2.38	1.84	2.01

A perusal of Table 3 reveals that fixed capital per unit of output in the manufacturing sector is much higher (0.48) in the rural areas as compared to (0.28) in the urban areas. So far as *the entire industrial sector* is concerned, fixed capital per unit of output is the same (0.51) both for rural and urban located industries. It is almost of the same order (0.48) as that of the rural sector (0.51) in the manufacturing activity and is about 2 times the urban sector (0.28) in the manufacturing activity. Fixed Capital per worker in the entire industrial sector is Rs. 1.34 lakh as compared to 0.77 lakh in the manufacturing sector and is 1.75 times that in the manufacturing sector. Similarly, fixed capital per factory in the entire industrial sector is 1.71 times and it is more than double in the urban area as compared to its corresponding value in the manufacturing sector ; indicating that power generation which forms the bulk of "other than manufacturing sector" of industrial sector is generally heavily capital intensive. Another interesting feature which emerges from the Table 3 is that in the industrial sector as a whole, the fixed capital per unit of Net Value Added differs from rural to urban areas some what. But the same factor when studied in relation to manufacturing sector alone varies tremendously as between rural and urban areas.

Examination of the labour productivity indicators, both in respect of 'output per worker' and 'value added per worker' reveal that in the manufacturing sector it is somewhat lower in the rural based industries ; their values being 2,24,507 and 47,363 respectively ; these values in the case of the urban located industries being 2,74,124 and 57,857 respectively. A similar phenomenon has been observed in the total industrial sector also. As regards other indicators like wages per worker/employee, it is observed that in both the cases, namely the manufacturing and the industrial sector, these are significantly lower in the rural based industries.

From Table 3 it may also be observed that fixed capital 'per employee' as well as 'per factory' is less in urban area than in the rural located manufacturing sector industries ; these percentages being (–44.10) and (–52.63) respectively. These ratios thus indicate that fixed capital is more in the rural based industries. Same is the case with the invested capital per factory. This thus, indicates that more investment has been made in the rural than urban located industries. With regards to the fixed capital per unit of value added in the urban located industries it is as low as (–) 91% in the manufacturing sector and (–) 15.85% in the entire industrial sector. This, somewhat anamolous looking position may be, to some extent, due to the significant under coverage of non-registered establishments, particularly in rural areas.

With regards to the labour productivity, their differential percentages vary from 10.29, 'value added/factory' to 24.67 for 'net value added/employee'.

With regards to wages per worker and emoluments per employee these are higher in urban located industries by 38% in both the cases namely manufacturing and the entire industrial sector indicating thus prevailing significant under employment in the rural areas. This thus indicates that both, the workers as also employees, are being paid much lower in rural areas than their counterparts in the urban located industrial units. In respect of worker per factory these percentages indicate that these are lower by about 10% in the urban areas. Similarly, employees per factory are higher in rural areas in the case of manufacturing sector. But in the entire industrial sector it is higher in the urban area presumably due to large size of operations necessitating supervision ; differential percentages being as high as (–) 5.82 and 9.11 respectively.

From this, one could draw an inference that so far as unskilled workers are concerned they are hired much more in rural located industries than in the urban areas, as compared to the all employees including the supervisory staff indicating management oriented industries located in the urban areas.

Another significant feature which emerges from the Table is that net value added per unit of emolument is lower in the urban areas both in the manufacturing and the entire industrial sectors ; these being (–) 14.85% and (–) 22.68% respectively. The inference which could be drawn from the above feature is that employees in the industrial units located in the rural areas have higher productivity at lower wage level than those of the urban areas, and thus the intensive efforts should be made for location of the industrial units in the rural areas.

From the study, it has been observed that in the entire industrial sector about 27 per cent of the total factories are located in the rural areas as compared to the share of 73 per cent in the total population. Further, more than 26 per cent of the total Fixed Capital is employed in the factories located in the rural areas. It is also interesting to observe that in the case of Food Products, Wood and Non-Metal Industries, share of the Fixed Capital is more than 50 per cent, in case of each of these industries.

With regard to employment which is one of major objective of the Eighth Five Year Plan, it has been observed from the study that about 29 per cent of the total workers are engaged in the manufacturing sector in rural areas. However, in the two industry groups, namely, Food Products and Non-metal Industries

Contd. on page 28

The Constitution of India

Preamble

"WE THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC and to secure to all its citizens...."

सर्व धर्म समभाव

Sarva Dharma Samabhav

मित्रस्य मा चक्षुषा सर्वाणि भूतानि समीक्षन्ताम्।
मित्रस्याहं चक्षुषा सर्वाणि भूतानि समीक्षे।
मित्रस्य चक्षुषा समीक्षामहे।।

Yajurveda .(यजु. 38-18)

Equal respect for all religions.
This is the ethos of India.
And it runs like a thread in
all our spiritual thought.
The secular outlook is our safeguard.
And it is enshrined in our Constitution.
Let us rededicate ourselves to uphold
this principle.

لا یؤمن احدکم حتیٰ یحب
لأخیه ما یحب لنفسی

(Hadith.)

Treat others exactly
as you would like
to have them treat you.

(Luke 6,31)

ਦੇਹਰਾ ਮਸੀਤ ਸੋਈ, ਪੂਜਾ ਔ ਨਮਾਜ਼ ਓਹੀ,
ਮਾਨੁਸ ਸਭੇਕ, ਪੈ ਅਨੇਕ ਕੋ ਪ੍ਰਭਾਵ ਹੈ।
......
ਅਲਹ ਅਭੇਖ ਸੋਈ, ਪੁਰਾਨ ਔ ਕੁਰਾਨ ਓਹੀ,
ਏਕ ਹੀ ਸਰੂਪ ਸਭੈ ਏਕ ਹੀ ਬਨਾਵ ਹੈ।

Guru Gobind Singh

SECULARISM
STRENGTH OF OUR REPUBLIC

Need To Promote Minor Irrigation Works

R.S. Saksena

FROM the ancient times, India has been an agricultural country. Increased agricultural production is needed to feed its ever growing population which is 845 million (1991). Rainfall is confined to a few months in a year and is erratic both in place and time. Moreover, the dependence of agriculture on rain water renders cultivation precarious and there have been very serious droughts at times in the country causing severe famines which brought untold miseries to the people There was a severe drought in 1987. Thus, it was to face the menace of drought following the failure of monsoons that artificial systems of irrigation were devised here from ancient times

In the Vedas, the earliest sacred books of the Aryans, mention is made of wells, canals and dams In the Rigveda four types of waters are mentioned, viz waters which come from the sky or rain water, those which flow in rivers and stream, those which are obtained by digging and those which ooze out from springs Mention is also made of the term 'Avata' which signifies a 'well'.

Fortunately, a good deal of information has survived regarding the construction of canals and dams in India during the past millenniums Irrigation received special attention under different rulers. By a study of the vast literature and epigraphical records, it is possible to get an idea of the pains the ancient rulers in India took in the construction of public works for the benefit of their subjects. In South India, dams, tanks and canals were mainly used for the purposes of irrigation. Dams and tanks were provided with sluices to regulate the flow of water Water was first let out into the main channel and then distributed into a large number of branches. The system was quite elaborate.

Thus, before the British rule, most of the irrigation works were storage tanks, check dams or small diversion canals. During the British rule some big dams and canal works were taken. But after independence from the First Plan the main thrust was given to construction of big dams and canals. The ground water development was also mainly confined to wells and some tubewells During the severe drought of 1966-67, serious thought was given to massive development of ground water through wells and tubewells through loan and subsidy programmes but the surface water minor irrigation works like tanks, check dams, small diversion canals or small lift scheme did not receive due attention. There is a system of maintaining actual area irrigated under Government. canals, private canals, tanks, wells and tubewells and other sources.

Till 1970-71, maximum area was irrigated by canals but after that ther was a sharp increase in area irrigated by wells and tubewells while increase in canal area was quite slow. At the same time, area under tank irrigation, private canals and other sources i.e. check dams, khuls and small lift has shown a declining trend. Now looking to financial investment made upto 1989-90, the classification is with respect to major medium irrigation Rs. 28,292 crore, including Command Area Development, minor irrigation Rs. 7,420 crore and loans advanced for minor irrigation by banks at Rs. 7,050 crore totalling to Rs. 42,762 crore. These figures are as per VIII Plan document of the Planning Commission. Thus Govt. canals accounts for a Plan expenditure of Rs. 28,292 crore against which 86.62 lakh hectares of new area (1950-51 to 1989-90) has been actually brought under irrigation.

In case of wells and tubewells, an estimated expenditure of about Rs. 11,000 crore has been incurred which includes farmers own contribution also. Against this, the new area added is 167.82 lakh hectare. Thus average per net hectare cost for canal irrigation comes to Rs. 32,662 which in case of wells and tubewells is only Rs. 6,555. In other traditional sectors i.e. private canals, tanks and other sources like check dam, khuls (channels) etc. there has been a decline in area under irrigation as follows (Table 1):

Table 1

(Lakh hectares)

Type of irrigation	*Maximum Net area irrigated*	*Net Area irrigated in 1989-90*	*Decline*
Private canals	13 60 (1955-56)	5.00	8.60
Tanks	45.61 (1960-61)	32.00	13.61
Others	29 67 (1950-51)	28.70	0 97
			24.18

Thus a total area of 24.18 lakh hectares has gone out of irrigation under these traditional sources in spite of additional area added by new tanks. This has been due to inadequate attention being paid to these works. In case of Government, it did not pay due attention to these small traditional and environmentally safe works while in case of farmers, it was out of reach of individual farmers to construct and maintain these works and as a community there was no leadership to organise and do the job. The Government had put most of its energy to big canals, and dams, while individual farmers went on their own for wells, borewells and tubewells. Although both these systems have done tremendous good to increase the food production but at the same time, they have their shortcomings too. In case of canals, there is a severe problem of water logging, salinity and weaker section and tail end farmers not getting water while in respect of wells/tubewells, over-pumping of ground water has caused serious problem of drinking water and salinity ingress in coastal areas. In respect of environment and ecology also, it has affected the vegetation growth.

Advantages

Coming to old traditional system of tanks, check dams and khuls, these protect and preserve the environment. Tanks store the surplus run off and thus conserve the water and at the same time provide water for drinking and irrigation to community and cattle. Check dams protect the soil, cause excess run off to seep underground and add to ground water recharge. At the same time all these irrigation systems are labour intensive and will go a long way in reducing the rural unemployment. For example desilting of thousands of tanks and ponds will require a huge land army, construction of check dams will also give employment to large number of skilled workers like masons etc. In case of tanks, to cite an example in Karnataka, there are 36,552 tanks with a command area of 5,57,683 hectares. Out of these 443 are big tanks with more than 200 ha command area owned by PWD for irrigating an area of 1,83,668 hectares and rest are all small tanks under Zila Parishad. Actual area being irrigated by these tanks is about 50% only. For restoring the lost capacity of these tanks, it has been estimated that an amount of about 700 crore of rupees is needed which can irrigate cropped area of about 3 lakh hectares. The total number of tanks as per recent Minor Irrigation census carried out by Ministry of Water Resources excluding the figure for Bihar, Rajasthan and Assam is 2,83,000 out of which 49,000 are out of use (Bhu-Jal News, a quarterly journal of Central Ground Water Board July-September 1990 issue). Thus, on the basis of Karnataka estimate, and taking 150% as irrigation intensity, for all India tank restoration programme an amount of Rs. 4,764 crore may be needed to irrigate lost net area of 13.61 lakh hectares. However, if the work is done through NGO (non-governmental orgaisation) by farmers' participation, the amount needed may be much less.

Similarly, in case of check dams in one district Medak of Andhra Pradesh, it has been estimated that 12,000 check dams can be constructed to benefit 65,600 sq km area. The additional ground water recharge can sustain 30,000 additional dugwells which can irrigate 60,000 ha of irrigated dry crops. The estimated cost of each check dam will be about Rs. 15,000 each. Even if such a programme can be implemented in 200 districts of the country, the additional cropped area irrigated will be 120 lakh hectare against a cost of Rs. 15,600 crore, including cost of new wells at Rs. 20,000 each.

In case of private canals which are mostly khuls in the State of J&K, HP, UP, Sikkim and North Eastern States, a crash programme of renovation is a immediate necessity. For J&K State the cost of renovation has been estimated at Rs. 100 crore. On all India basis, the total cost may come to about Rs. 500 crore and area restored may be equal to area lost i.e. about 9.57 lakh ha. Thus restoration of tanks, khuls and construction of new check dams can irrigate a cropped area of about 144 lakh ha against an estimated cost of Rs. 20,864 crore. This investment will help to provide massive employment in rural areas. The capital cost of this programme comes to about Rs. 15,000 per hectare only, which is quite economical. At the same time, these works will make a vast improvement in the environment and ecology. This programme could be implemented as an Environment Improvement and Rural Employment Programme with farmers participation through N.G.O.'s network in the country. The irrigation policy in the country needs re-orientation in this direction. □

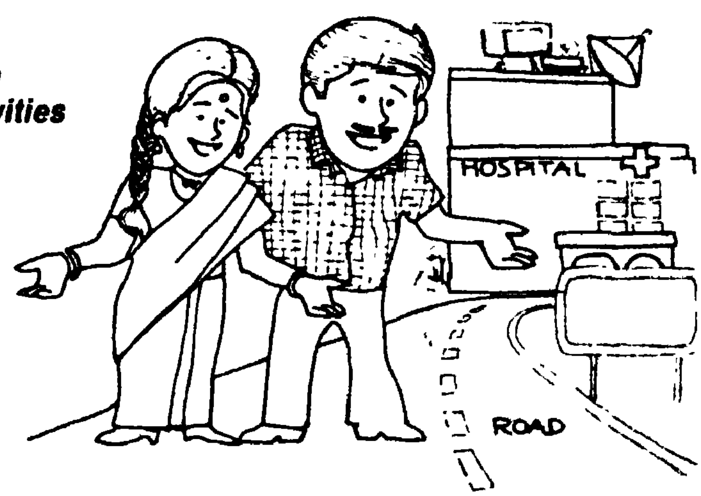
The author is Retd Chief Engineer, Ministry of Water Resources, Govt. of India, New Delhi

Impression: Central excise duties are a drain on individual resources.



Reality: They benefit the individual.

Education, Irrigation
Dams, Welfare activities
Fertilizers
Hospitals
Roads, etc.



Directorate of Publications, Customs & Central Excise.

davp 92/517

RAIL COACH FACTORY
KAPURTHALA

R C F MARCHES AHEAD....

PHOTOGRAPH OF AC CHAIR CAR

OBJECTIVES

* HIGH PRODUCTIVITY
* TOTAL QUALITY MANAGEMENT
* ENERGY CONSERVATION AND TECHNOLOGICAL IMPROVEMENTS
* INDIGENISATION AND INNOVATIONS
* MAN POWER PLANNING AND STAFF WELFARE

ACHIEVEMENTS

* RCF HAS MANUFACTURED 833 COACHES DURING FIRST NINE MONTHS OF 1992-93 AS COMPARED TO 654 COACHES PRODUCED DURING 1991-92 WHICH SHOWS 28% IMPROVEMENT.
* AC COACH WITH ROOF MOUNTED AC PACKAGE UNIT INTRODUCED.
* INVERTER EQUIPPED SELF GENERATING COACH DEVELOPED FOR THE FIRST TIME IN THE COUNTRY.
* DIVERSIFICATION OF PRODUCTION.
* MANUFACTURING OF AIR BRAKED COACHES.
* FOREIGN EXCHANGE SAVINGS TO THE TUNE OF RS. 1.58 CRORE PER ANNUM THROUGH INDIGENISATION.

Mango Export : Juicy Prospects

Gokul Patnaik

MANGO (Mangifera indica L) is one of the six major fruits grown in the world. It is a native of India and has been grown here for over 4000 years. At present mango occupies 42% of the total area under fruit cultivation in India and its annual production is estimated at 9.5 million tonnes which is about 40% of the total Indian production of all fruits. Besides having a delicious taste, excellent flavour, and attractive fragrance, it is an excellent source of vitamins 'A' and 'C'. It is rightly known as the "King of Fruits".

Although mango is grown in almost 63 countries, India is the largest producer in the world accounting for over 60% of the total world production. Production of the top 10 mango producing countries, (in descending order) during the year 1990 is given in Table-1. India's rank is No. 1 followed by Mexico, Pakistan, Indonesia etc.

Mango commands a pride of place among the fruits having the largest number of varieties. India is known to be the host of as many as 41 species and over 1,000 varieties of mango. However, out of these many varieties only about 20 popular varieties are of commercial significance.

World Market

Of the total world production of 15 million tonnes only 0.6% is traded internationally in the fresh form. The rest of the 99.4% is either consumed in the country of production or further processed. North America is the largest market for fresh mangoes, accounting for 50% of world imports. The EEC and the Middle East are the other major importers.

Venezuela, Mexico, Haiti and Brazil account for a majority of North America's imports. India's share is negligible because of the quarantine limitations. In the EEC, India is a marginal player with Brazil and Mexico being the major exporters. The Middle East market is dominated by India and Pakistan. Although Asia accounts for 70% of the world production, this domination is not translated into the international trade. India's share in world trade is less than 10%.

Indian production of mangoes is nearly 10 million tonnes per annum. Mango is grown practically all over the country. The major producing States are U.P. (34.2%), Andhra Pradesh (19.09%), Bihar (13.44%), Orissa (8.22%) and Karnataka (5.07%).

The Indian season for mangoes starts in March and goes on till July. The Alphonso and the Madrasi variety from South India are early season varieties and come to the market by mid February. Its season is for about two months till April. The Badami variety comes in by April and is in the market till May. The U.P.

TABLE-1

Production of Mangoes

Countries	*Production*	*Quantity in Mt*
		% of World Production
World	15700	100.00
India	9500	60.51
Mexico	800	5.09
Pakistan	760	4.84
Thailand	572	3.64
Indonesia	441	2.81
Brazil	415	2.64
Haiti	300	1.91
Zaire	208	1.32
Madagascar	196	1.25
Tanzania	86	1.18

Source : FAO Year Book, 1990

mangoes—Chausa, Dasheri and Langra enter the market in April and their season lasts till June/July.

Pakistan, which is India's major competitor, has a season similar to North India and it has similar varieties as well. It's Chausa and Langra varieties also start in May and are in the market till August. However, the Alphonso variety is unique to India. Further India has the advantage of early varieties (from South India, Madrasi) like Badami and Begumpally which are not available in Pakistan.

Although India accounts for over 60% of the world production of mangoes, its share in world exports does not commensurate with its production base. The export of mangoes from India during the last few years has been as given in Table-2.

TABLE-2

Export of Mangoes from India

Year	Volume (Mt)	Value in Rs. (crore)
1985-86	16539	1932
1986-87	16257	1912
1987-88	20302	2334
1988-89	16839	2211
1989-90	12008	1675
1990-91	19380	3122
1991-92*	25000	3600

* Provisional   Source : APEDA/DGCIS

Export Destination

Traditionally, the major market for Indian mangoes has been West Asia. Small quantities are also exported to UK, Canada, Singapore and Australia. However, the final consumer in these markets is probably the ethnic Indian. The Indian mango has not been able to penetrate into markets like EEC and the South East Asian countries where the ethnic Indian population is not significant. Further, large markets like Japan and USA are not accessible due to quarantine restrictions.

Export Problems :

India has not been able to achieve the full potential in the export of mangoes. There are a number of reasons for this, the major being :

(a) There is an over dependence of Indian mango exports on the Alphonso variety, the production of which is limited. It is only recently that Totapuri mango has also been exported.

(b) The Indian mango is one of the highest priced mango varieties in the international market. This is because the Alphonso variety is expensive even at home, when compared to other varieties like the Badami and Chausa as can be seen in Table-2. Also, Indian mangoes are being exported mainly by air. The freight rates for air transport are much higher than in case of sea

(c) India's major competitor in Middle East market is Pakistan. It has a season similar to that of India and it has similar varieties like Chausa and Langra. Pakistan has a cost advantage in Middle East market as it sends its mangoes by country crafts/launches from Karachi. The freight on these from Karachi to Dubai is very low at Rs. 3/Kg vis-a-vis Rs 29/Kg by air from Bombay to Dubai Thus once the Pakistani mangoes come into the market in May, Indian mangoes cannot compete on price terms.

(d) Indian mangoes cannot be exported to USA and Japan which are big markets because of their strict quarantine laws which require vapour heat treatment. The facility for vapour heat treatment prior to exports is not available in India.

(e) The difficulty in obtaining bank finance and packing credit also hampers export efforts. The present scheme of packing credit for the freight component of the export cost is limited to only 10% of the FOB value. This is grossly inadequate in case of special transport such as by refrigerated containers where the freight cost works out to around 50-60% of the FOB value. Similarly, although Government has permitted exports on consignment basis, banks grant credit only for exports against firm orders.

Export Potential

In view of India's large production base of mangoes and the availability of wide range of varieties as well as unique and superior varieties like the Alphonso, India can achieve higher quantum of exports. However, there has to be generic promotion of Indian mangoes in markets like Europe and South East Asia. Cosumer awareness about superior quality and taste of Indian mangoes has to be brought about.

New varieties like Chausa, Safeda and Badami have to be promoted so that India's export basket can be diversified to include these varieties also. This would help in prolonging the Indian season. If this is achieved potential for the export of mangoes from India could be large. It is projected that India would be able to export upto 44,000 m t. valued at Rs. 76 crore Bombay, Delhi and Hyderabad would be the major ports of export and most of the mangoes would be going by sea except to the US and South East Asian markets which will be covered by air due to location factor.

India's current exports of mangoes to Europe are only around 100 m.t. The total imports to Europe are estimated at around 36,000 m.t UK is the large market for mangoes in Europe with France, Germany and the Netherlands also emerging as important

Of the total imports to Europe nearly 75% are during the months of March to August which is the producing season of most of the supplying countries Kenya is the only country with year round production and supplies India's season coincides with that of the major supplying countries However, there is a fall in consumption during early (March-April) and late season (June-July) which India can fill. This is to the order of 6750 m.t. which has been assumed to be the India's export potential.

Strategy

The strategy that should be adopted to achieve the projected export to Europe is the following :

(a) The European market is price sensitive and for India to be competitive, mangoes will have to be sent by sea. The technology for maintaining the quality and ripeness of fruit during the sea journey is available with many shipping lines like CMB, MEARSK and Sealand. This should be used to cater to European market cost competitively.

(b) There is need to aggressively promote non-traditional varieties like Chausa, Safeda and Badami in European markets through trade fairs, exhibitions etc. The supply base for Alphonso variety is limited. Promotion of other varieties will not only increase the supply of mangoes available for export but also extend the mango export season as the Chausa/ Langra (May-June-July) Begumpally (April-May) are late season fruits while Alphonso is an early variety with season being limited to March-May Thus during May-July as the Alphonso season is ending, other varieties of mangoes will be exported like the Badami from Andhra Pradesh and Chausa and Safeda from North India

(c) There is a gap in supply in the European market during March to July. India is currently exporting 1000 m.t to Europe during mid March to April It is projected that India would continue to supply those quantities plus fill the gap in the European market. In March only 50% of the gap i e. 1000 m.t would be supplied by India as the season in India for mangoes starts by 15th March or so. For the other months i e. from April to May, 100% of the gap in the European market would be filled in by India. Thus India would supply 5750 m t. plus the current level of 1000 m.t. to Europe.

Middle East Market

The Middle East Market is dominated by India and Pakistan. Recently, African and South American mangoes are entering the market.

No exact data is available on the volume of imports into the Gulf but based on exporters information the potential is fairly large. In fact during Ramzan the demand reaches upto 360-480 m.t./day.

Dubai is the major transhipment and distribution point for mangoes accounting for nearly 55% of the imports into the Gulf. It supplies to countries like S. Arabia and Bahrain through a modern distribution system. The major consumers are the UAE, Saudi Arabia, Bahrain, Kuwait and to a lesser extent Yemen.

Thus goods imported into UAE are re-exported to other Middle East countries. The UAE market is price sensitive and consumes by and large sea freighted mangoes coming from India and Pakistan which are priced reasonably. The air freighted mangoes are preferred in Saudi Arabia, Bahrain etc. which are willing to pay a higher price.

India and Pakistan are the major suppliers with around 90-95% of the market. This is due to geographical proximity and the ethnic population in the Gulf countries which have strong preferences for Indian/ Pakistani mangoes. India's exports are around 9000-11000 m.t. to the Middle East. The varieties have been Alphonso and Totapuri. Pakistan supplies Chausa from May onwards. Indian mangoes are popular only in the early part of the season i.e March, April after which Pakistani mangoes take over, as they are cheaper.

The total potential for export of mangoes to the Middle East is 34,000 m.ts. p.a. The average monthly

demand in the Middle East is 10,000 m.t. except in the month of May which is the Ramzan month and imports are as high as 450 m.t. a day. Also UAE is a major market in the Gulf accounting for nearly 55% of the total market. However, this market is price sensitive unlike Saudi Arabia, Bahrain etc. which are premium markets, willing to pay a high price for a quality product.

India's season starts in mid February and there is no other country supplying to the Middle East at that time. Thus India can get a 100% share of the market in March as it would start supplying by around the 10th of March. In April also India would get 100% share of the market. During the Ramzan month in May, demand for mangoes peaks and India has no competition during the first 15 days as Pakistan mangoes enter the market only after 15th May. Hence, for the first 15 days, India would get 70% share of the total Middle East market in mid May. India would be able to get only a 15% share in the Dubai market which is a very price sensitive market and Pakistan mangoes would be cheaper as these are sent by sea. However, in the premium markets of the Middle East, India would get a 50% share as the mangoes will have to be air freighted and India and Pakistan would be equally well placed. This pattern would follow in June and July also when the market demand falls to its original level of 10,000 m.t.

How To Realise

The strategy is based on a few important facts :

(a) It is possible to sea freight mangoes to Middle East, in reefer containers with proper post harvest treatment and packaging. Sea freighting will help in reducing the cost of Indian mangoes in Middle East market.

(b) Through active promotion, other varieties, like Chausa, Badami can be made popular in the Middle East. These varieties are far cheaper and would make Indian mangoes cost competitive in these markets.

(c) Availability of air cargo space has been a major constraint affecting exports. Mangoes will have to be air freighted during early March to catch the early season. Further, some air freighting is essential to cater to S. Arabian and other premium markets in the Middle East.

In March and April, the Alphonso mango would be exported to the Middle East. This is an early season variety and at this time there would be no competition in the market. However, to reach the market in early season certain quantity would be exported by air, the rest being despatched by sea. In April/May the Badami mango would be exported from Hyderabad, mostly by sea. And May-June onwards, the Chausa and Safeda mango would be exported from Delhi.

Thus nearly 70% of the mangoes would be going by sea, as otherwise India would not be price competitive with the Pakistani mangoes. only some provision has to be made to air freight mangoes to the premium markets in the Middle East and some for emergency supplies

The SE Asian markets consist mainly of Japan and Hong Kong. The total import of these two countries alone is around 8000 m.t. (Japan : 5000, Kong Kong : 3000). Though data on import into other countries are not available, it is unlikely to be substantial with these two countries accounting for nearly 60% of the import in S.E. Asia.

The import into Japan currently comes from Mexico, the Philippines and USA. The price is high since mangoes are air freighted to reach the Japanese markets. Vapour Heat Treatment is essential for Japan. In the absence of vapour Heat Treatment facilities India, has not been able to make an entry in this market.

S.E. Asian market needs premium quality product, price being no consideration. Currently mangoes are being air freighted all the way from USA and Mexico. Indian varieties have better taste, flavour and thus India can capture a certain share of the S.E. Asian markets.

It is assumed that India can get atleast 10% share of the total S.E. Asian market, Japan and Hong Kong markets, as said earlier, account for 60% of the total import of mangoes in S.E. Asia. Thus the S.E. Asian market is estimated to be 13,500 m.t. p.a. With a 10% market share, India can export 1,350 m.t. to the S.E. market.

However, for India to be able to export mangoes to the S.E. Asia market, the following have to be done :

(a) Mangoes will have to be air freighted to the S.E. Asian markets as the sea journey is too long (the sea journey to Japan/Hong Kong is too lengthy for the mangoes to remain in good condition).

(b) India has to aggressively promote its varieties—the Alphonso, Badami, Chausa and Safeda—so that it can cover the entire season.

Thus mangoes will have to be air freighted from Hyderabad (Badami), Delhi (Chausa) and Bombay (Alphanso).

The U.S. market is believed to be large for mangoes. India is placed at a logistical disadvantage. However, in view of the large ethnic population in N. America, a small provision of 1000 TPA (tonnes per annum) of mango exports from India has been made. It is learnt that the ethnic population, which is substantial in the U.S. is willing to pay a higher price for the better quality and taste of Indian mangoes. These mangoes will have to be air freighted to U.S.A. Also, it is assumed that a vapour heat treatment plant will be set up as only then can mangoes be exported to U.S.A. because of the quarantine requirements. □

Industrial Prospects Of Coir Pith

S. Isabella Rani
And
Dr. S. Krishnamoorthy

INDIAN economy is an agriculture based one. About 80 per cent of its population is directly or indirectly involved in agriculture and allied fields. Evidence from a number of developing countries shows that very small enterprises in the cottage industries and handicraft sector could contribute more than one-third to the economy. Expansion of these sectors, therefore, have important effects.

The coir industry, based on the coconut has potential for development in coconut growing countries of Asia and Africa. At the world level, 90 per cent of coir production is concentrated in India and Srilanka. Regarding productivity, Tamil Nadu stands first among the states with 11538 nuts/ha. From the coconut husk, two products are obtained namely coir fibre and coir pith of which the latter is put to waste.

Disposal of coir pith, which is 70 per cent of the husk is a major problem. The owners have to either purchase waste land for disposing the pith or dump it along the roadside which causes environmental pollution. But it has got many uses and most of the farmers are not aware of it.

. Moisture Conservation.

Moisture is very much necessary coconut plantations. Coir dust has the ability to absorb and retain 10 times its weight of water. In gravely soils, burying of coir dust gives a 20 per cent increase in yield. The water holding capacity of the soil can be improved considerably by using coir dust for a long period. The soil becomes more porous allowing better root penetration and leguminous cover crops can be planted on the coir pith pits as it will prevent loss of soil nitrogen.

The method of composting coir pith as a manure was introduced by the agricultural scientists of Tamil Nadu Agricultural University, Coimbatore.

The chemical composition of raw coir pith is lignin—30.0 ; cellulose—26.0 ; Nitrogen—0.26 ; Phosphorous—0.01 ; Potassium—0.78 ; and C N ratio—112 : 1. Lignin and cellulose form the major components which is not easily degradable. To compost a ton of coir pith and use it as a manure the following are needed—1 ton of coir pith ; 5 kg of urea and Pleurotus sojar caju.

Cost of composting 1 ton of coir waste works out to R s 50 per month. In the present situation due to cost escalation effects of fertilizers this method may be cheaper when compared to pure fertilizer application.

B. As a fuel

The estimated production of agricultural wastes in India is over 200 million tonnes per year. Coir pith, which is abundantly available can be used as a fuel by compacting the mass as briquettes as found by the engineers at Tamil Nadu Agricultural University, Coimbatore. The coir pith as such does not burn well and cannot be used as a fuel and therefore it is converted into briquettes and utilised as fuel.

The coir pith has to be mixed with cow dung as a binding material in the ratio of 6 : 1 to form as a dough material. The product is then fed through the feed hopper of the briquetting machine. The material is pressed through the extruder pipe assembly and come out as hollow briquettes.

C. Briquette Making

By exploiting the water absorption and retaining capacity of coir pith briquettes can be manufactured. The coir pith is pressed udner pressure and made in the form of slabs. This technique was found successful after a lot of research by the Sakthi Fibre Products, Coir Industry at Pollachi in collaboration with some European countries with export orders from here, but the technical know-how is yet to be enlightened.

Gaskets can be made from coir pith and the samples of gaskets so made have been found comparable in properties with rubberised cork sheet. This product can replace the imported cork granules which at present is used to manufacture rubberised cork sheets.

The process consists of mixing the coir pith with nitrile rubber and other ingredients and vulcanising the mix in a press under temperature and pressure in suitable moulds. The processing of 3 ton of coir pith/annum will produce about 5.7 ton of gasket sheets.

This method was developed by the National Chemical Laboratory at Poona.

Hygroscopic property of the pith can be utilised to consolidate the sand so that some sort of greens, grass, casurina, cactus, a loe, could be grown and stop the spread of deserts in Rajasthan and sea-shores.

To convert the waste into many products, government and other institutions like Coir Board, Universities and State Department of Agriculture etc., should come forward to popularise the use of pith in its various forms. Awareness campaigns should be undertaken to spread the information on the utilisation pattern of the coir pith wherever it is found to be feasible. Government can provide subsidies to start such units which can generate more employment opportunities in the rural areas.

Finally, disposal of coir waste can be eliminated if it is put to effective use. Productivity in the farms can be increased when they are used as compost ; foreign exchange can be earned when sold as briquettes and employment opportunities in the country can be generated locally. It is time we should convert the waste into wealth. □

The authors belong to Tamil Nadu Agrl. University, Coimbatore.

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(contd.)

Review Article

Technology Transfer In Agriculture

Dr. Damodar Tripathy

AGRICULTURE AND TECHNOLOGY IN DEVELOPING *COUNTRIES : INDIA AND NIGERIA* by Sumit Roy; Sage Publications, New Delhi (1990) ; PP 223 ; Rs. 190.

Managing food economics under the pressure of growing population and non-availability of appropriate technology and adequate institutional support has been a major challenging task for Government of many developing countries in Asia and Africa. The policy regime and the framework to face the challenging task, however, had shown great variability between developing countries due mainly to differing socio-political backdrop, leading to substantial variation in the degree of success in relation to the steps taken.

India and Nigeria show similarity in terms of federal structure, large internal markets for their products and considerable number of people below poverty line both in rural and urban areas. The differences relate to (i) the periods from which they realised and pursued policy for accelerated food production programmes : (ii) their respective contents and (iii) the political and administrative will with which the programmes were pursed. The book under review while focussing on the critical problem as to how to boost food production, goes into details of the policies, programmes and strategy for technology adoption and implimentation within varying socio-political context of these two economics

Although, within the broad framework of federal structure both intended to pursue a policy of self-sufficiency in food production, they differed substantially in their approach to achieve the goal. India relied heavily on the role of State in creating infrastructure, physical, institutional and social, to disseminate technology, mostly indigenous and then imported, adopted to local conditions, right from the initial years of Planning era. Nigeria mainly followed a policy of cash crop cultivation for exports till early seventies, while the food sector was left to fend for itself. India placed priority on agriculture along with a sound industrial base ; Nigeria's allocation to agriculture fell from 9.5 per cent of the total in the First Plan (1962-68) to 7.1 per cent in the Third Plan (1975-80). The policy, however, changed from Fourth Plan onwards, to create physical infrastructure, provide economic incentives and enabling conditions for increasing production and productivity. But by that time India had already achieved substantial progress in the field of agriculture and this has been recognised by the world, even by those who once thought India was a gone case so far as self sufficiency in food was concerned.

Agricultural technology rests heavily on reasearch. A comparative picture relating to agricultural research indicates that India invested substantial resources on creation of institutes of research with widely dispersed network of regional centres to assimilate technology to adapt to regional agroclimatic conditions. These institutes were also able to develop suitable high yielding varieties of wheat and rice. The international bodies as well as local research institutions synchronised research programmes to help increase in production and productivity of food crops, specifically of wheat and rice.

This situation was quite in contrast with the scenario in most African countries, including Nigeria.

A policy shift was, however, seen during the later half of Third Plan (1975-80) in Nigeria, which, along with the measure taken during the early seventies e.g. Operation Feed the Nation (OFN) and the National Accelerated Food Production Programme (NAFPP), and the biological and mechanical technologies under the Agricultural Development Project (ADP), and the River Basin Development Project (RBDP) helped in providing the key components to the Nigerian "Green Revolution" emerging in the early 1980s.

The technology was duly encouraged by technology supporting policies in India through provision of institutional credit, inputs and extension. It was also well supported by minimum support prices for major products. Even though the distribution of the inputs, credits and even extension was uneven as per certain studies, the poor farmers also improved their position in regard to productivity and income. Nigeria tried to follow similar policies. However, implementation of these policies left much to be desired resulting in limited impact. While in India, specific policies were formulated and implemented with respect to the flow of agricultural credit both in terms of minimum percentage to the total as well as to specific target groups (like small holders), a "clear urban bias has been uncovered in the commercial loan allocation coupled with preferential treatment of the large and large scale peasants" in Nigeria. As in India, fertiliser in Nigeria was subsidised at a heavy rate (initially to the extent of 75% which was much higher than the rate prevalent in India) to boost adoption rate of new agricultural technology. The rate got substantially reduced in later half of 1980s due to oil price collapse and sharp reduction in public expenditure on account of heavy indebtedness. As a consequence, "technology supporting policies in Nigeria have clearly tended to be less coherent and subject to considerable uncertainty and instability compared to India."

The book is divided into four major chapters, excluding introduction. While introduction provides the setting, the principal chapters deal with the role of State in agriculture and technology in India and Nigeria, the production and import of chemical fertilisers, the diffusion of technology and the State, technology and food production and lessons of the comparative study. The analyses are cogent and arguments convincing. An excellent study equally profitable for general readers and researchers in the field of development economics. □

Contd. from page 14.

more than 50 per cent of the total workers are employed in the rural areas. Needless to say, that besides generating employment in the rural areas, the encouragement of these industries in the rural areas will go a long way in the rural development and lessening the disparities. As regards value added by manufacture, 25 per cent of the total is contributed by rural areas in the manufacturing sector.

The rural-urban differentials of the structural ratios and technical coefficients indicate that Fixed Capital per employee/per worker as well as per factory is less in the urban areas than in the rural located manufacturing factories. Same is the case with the invested capital.

Labour productivity, as measured through the output and value added per worker, it has been observed that both in the manufacturing sector as well as in the entire industrial sector, it is higher in the urban areas than those of corresponding units in the rural areas.

The other significant feature which emerges from the Study is that the labour in the rural areas is being under-paid to the extent of 35 per cent in the entire industrial sector and this phenomenon has been observed in all the major industry groups.

It is also interesting to note that for every rupee paid to the employee, there is 15 per cent higher contribution in the form of net value added in the rural located industries. In the case of entire industrial sector it is 23 per cent higher. This again is an encouraging feature because this shows that the workers in the rural area are contributing much higher in terms of value added for every rupee paid to them.

The most important feature which emerges from the study is that factory located in the rural area is contributing much more at the lower cost so far as labour is concerned. Output-input ratio is almost of the same order.

With a view to having an indepth analysis of the rural-urban differentials on the capital, labour productivity and other related indicators, another detailed study needs to be undertaken in respect of each industry group at least at the major industry group level. □

The author is retired ISS Officer.

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Book Review

Service Conditions and Discipline Code in Regional Rural Banks by S.K. Datta ; Govind Prakashan, 37 Natraj Nagar, Tonk Phatak, Jaipur ; Pages 179 ; Price Rs. 165.

In view of the inability of co-operative banks in mobilising adequate resources on the one hand, and the high cost structure of the commercial banks alongwith their urban orientation on the other, the Regional Rural Banks (RRBs) were established in October 1975 to overcome these problems. The rationale behind the setting up of the RRBs was to mobilise deposits and to cater to the credit needs of the marginal farmers and artisans in the rural areas at a relatively low cost structure. Ever since the establishment of the RRBs in India, the need for a comprehensive guide on the service conditions of the employees working in the RRBs has been urgently felt. This pressing need is fulfilled, to a great extent, by this book.

The book comprises 15 chapters 3 appendices and one table of cases. The author has covered almost all related aspects of the service conditions and discipline code applied so far in the RRBs in India. Outlining the origin and the gradual growth of the RRBs in the first chapter, the author touches the service conditions of the RRB employees under different heads like legal framework, service conditions, employment contract, compensation and benefits and leave rules in the RRBs The next eight chapters concentrate on the discipline code applied in the RRBs. The last chapter discusses the labour relations applicable to the RRB employees from time to time

Penned by a professional with long and varied experience in the concerned discipline, the book appears refreshingly original and potentially useful It will prove useful to the banking personnel working in the regional rural banks as well as in other banks.

Dr S.S Khanka

Women In Agriculture : Dr. (Mrs.) Shashi Kanta Varma ; Concept Publishing Company, New Delhi 1992 ; Pages 192 ; Price Rs. 225.

More often than not we speak eloquently about the equality of men and women and to support our claim we recall the guarantee given by our Constitution about the rights of women and that there should be no discrimination between the sexes. However, in reality even when we are entering the twenty first century we continue to take women for granted though they are now successfully competing with men in almost all the fields. The society, by and large, remains a male dominated one and due recognition is not given to the role of the women in developing our society.

A case in point is agriculture. The popular notion is that agriculture is being pursued only by male workers with women playing a secondary role. Dr. Varma's well researched socio-economic analysis blasts this myth into bits. Her theoretical perception backed up by tell-tale statistical data conclusively proves that though women play a crucial role in agriculture and allied occupation including household activities, their contribution is hardly appreciated and recognised By and large they continue to remain as 'invisible workers'. For example, in the cultivation of a major crop like wheat in land upto 2.5 acres, average man days deployed by women is 19.45 compared to 17.74 by men but in decision-making concerning farm, men hog as much as 94.44% in high socio-economic status ; 86.20% in medium socio-economic status and 87.11% in low socio-economic status.

Dr. Varma's study provides enough food for thought to the policy planners, administrators and also the agents for socio-economic transformation of the society by providing an insight into a typical agrarian profile of farm women. A very commendable contribution indeed !

P. Ghosh Dastidar

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Imbibing The Spirit Of Unity And Integrity

[The article is based on the Prime Minister Shri P.V. Narasimha Rao's speech at the Centenary Celebrations of Swami Vivekananda's Bharat Parikrama and the Chicago Address at Kanyakumari on 28th December, 1992.]

I consider it a rare privilege to address this gathering assembled at the sacred location of Kanyakumari to celebrate the inauguration of a Rashtra Chetna Varsh. May I also take this opportunity to felicitate the organisers of this conference for choosing the centenary of Swami Vivekananda's Bharat Parikrama and his epochal presentation before the World Conference of Religions as the occasion for initiating a movement that will strengthen the fabric and, at the same time, uplift the quality of national consciousness in our country The inauguration of a Rashtra Chetna Varsh would have been an important event in itself. So would have been the centenary of Swami Vivekananda's Bharat Parikrama and his critique of the moral texture of our Sanatan Dharma before the World Conference of Religions. The fusion of these two momentous events in a single cultural movement at so crucial a juncture in the life of our people invests this gathering with a transcendent importance.

The civilization of India is a civilization of classical antiquity. Yet, we are relatively new to the concept of nationhood and our nation state which is constituted as a secular and democratic republic is less than half a century old The dissemination of Rashtra Chetna or National Consciousness should strengthen our Republic, for the spiritual heritage of our civilization can provide it with a durable underpinning which represents the vision of our leaders, the vision also of those millions whose sacrifices made possible the triumph of Indian nationalism. I can think of no better assembly than the men of high spiritual learning who just spoke to us and thousands of whom dot the country everywhere and perhaps in the whole world because Indian culture has travelled far and wide for thousands of years and you find it echoed in every nook and corner of the world because it is not just a single country's religion or culture, it is the culture of the humanity as a whole.

As someone who has taken considerable interest in the social and moral history of Indian civilization, I have been struck by the seminal role which men and women of spiritual distinction have played in the development of our society over the centuries There is nothing fortuitous about this distinctive feature of our culture. From the outset, the creative genius of India found expression in individuals of truly epic spiritual stature rather than any impersonal, social and political institutions. The institutions themselves, by and large, drew their sustenance from the preceptors and went on to generate and to shape the destiny of the community. However, after the preceptors much of the resplendence abated. Thereafter, it was never as before The glory has dimmed

Unique Feature

In this part of India, we have any number of institutions, almost each one of them having been inspired by one individual who in turn was inspired by the spirit of service to the community. The institution drew inspiration from the individual, the individual strengthened the institution and both together served the society, strengthened the society and the moral fibre of the society. The central importance of religious leaders to the shaping and growth of our society is recognised by humanist scholars who speak of the spiritual powers of the renouncer. In this society of ours the highest is the one who leaves everything. Nobody can equal him. The renouncer is the highest.

Everyone bows before him. If he is a Swami, if he is a Sanyasi, he has nothing left in this world except own inspiration, that is the highest achievement according to our beliefs and according to our standards. This perhaps is not found in many other countries of the world and this is the unique feature of India that the renouncer stands above everybody else. In our own times no less than in earlier centuries, the true basis of moral order and social cohesion in our society is the dissemination of the spoken word of the moral actor through the fabric of society and the consequent initiation of collective action on the part of the people.

Hundreds of saints have been born in this country, they have given to the people a direction which all the books put together could not have given. A Kabir, a Dadu or a Dayal, a Tukadoji Maharaj in Maharashtra or the great Hari Dasas in Andhra, you take any one of them, they have disseminated much more moral fibre to the society, they have guided the society much more than book knowledge. Although book knowledge is important in itself, the spoken word has been the most potent force in Indian history because here it is direct communication between the person who preaches, the person who pleads, the person who stimulates the minds of the people and the minds of the audience The direct communication has no parallel and this has all that we have had through the centuries to inspire the society. Indeed the great tradition of the moral actor whose personal example and oral exhortation inspired social action on a truly epic scale is as much alive in our country today as it was earlier.

Moral Fibre

It is my profound conviction that Mahatma Gandhi, and nearer our own times Vinoba Bhave, stood in the tradition of some spiritual leaders of bygone centuries, in their place in our society, in their place in the affections of our people. If Gandhi could galvanise millions and millions of people, it was because of his moral fibre, it was because of his capacity to transmit that moral fibre and the spirit of sacrifice to those millions and millions of minds. He had nothing else to offer. He had no money. He had no power. He had nothing but tears and toil to give to the people and yet those millions followed him, followed him with all their heart, with all their soul until he brought freedom to India. This is the kind of leadership which has been thrown up from time to time in this country and that is why the country is alive today, it will live for ever and there will be no doubt about this He fused spiritual and social action in a single strand of reflection and practice, thereby expanding the moral parameters of Indian civilization, at the same time as he reinforced its social fabric and enhanced its capacity for collective action.

Swami Vivekananda, whose Bharat Parikrama and stirring call to all the people of the world we commemorate today, as we strive to deepen our Rashtra Chetna or national consciousness, in a large measure anticipated the seminal transformation wrought by Mahatma Gandhi in fusing the moral and social history of India in a single trajectory. We know from Mahatma Gandhi's writings how profoundly he was influenced by Ramakrishna Paramahamsa and his disciple Swami Vivekananda. One need not go any further than reading a few writings, articles and perhaps something which he spoke orally to his audience from time to time. We can understand that profound influence on Gandhiji.

Indeed, this unique feature of our cultural heritage is a feature which I would like to place for exploration and reinforcement before this august gathering so that the moral insights gained through your deliberations can spread to the remote corners of our land and reach out as a healing balm to our people at a time of great disquiet and deep anguish, when the moral fabric of our society and the political unity of our nation face challenges of the most formidable proportions.

While the teachings of Shri Ramakrishna exercised a profound influence upon Swami Vivekananda, it would be less than fair to look upon Swamiji as little more than a mere follower of his master. We have only to focus our gaze momentarily upon a portrait of Swamiji to get a measure of the incisive intelligence, the restless energy and the spiritual vitality which shaped this persona.

Swami Vivekananda was above all a man of action, a doer of things, rather than a mere visionary or a fabricator of grand spiritual designs. Indeed he possessed qualities of both reflection and action which reside very rarely within a single person. This is the unique feature of Swami Vivekananda. He was not only great in himself but he was able to transmit because he was a man of action, more than anything else.

Spiritual Revolution

Swamiji's belief that above everything else India needed a spiritual revolution stemmed from his conviction that lasting social dynamism could come to India only through the spiritual channel. His ultimate objective was social revolution and the channel through which he wanted to bring it about was the spiritual revolution. These two went side by side in his thinking.

The profound influence of Shri Ramakrishna upon Swami Vivekananda is sensitively reflected in Swamiji's formulation of the principles underlying the Sanatan Dharma of the Hindus and its relationship with other religious systems. Like his mentor, Swamiji looked upon Vedanta as the source of Hindu spirituality and the essential underprinning of the diverse moral

system located within Hindu society. As he put it, 'the word Vedanta must cover the whole ground of Indian religious life'. He also observed, 'I go forth to preach a religion of which Buddhism is nothing but a rival child and Christianity only a distant echo'.

While Swami Vivekananda was deeply influenced by the tolerance and catholicity of Shri Ramakrishna, his spiritual articulation was endowed with a life-force and a vital energy which was largely a reflection of his personal, spiritual and social dynamism. Indeed there is every reason to believe that Shri Ramakrishna chose him as the successor for these very qualities.

We get a vivid glimpse of the spiritual and social dynamism in Swami Vivekananda's polemic against those who ridiculed the so called materialism of the West. Mind you, he was speaking these words in 1893, almost a hundred years ago. What he had said is this : 'We talk foolishly against material civilization The grapes are sour Material civilization—nay even luxury—is necessary to create work for the poor. I don't believe in a God who cannot give me my bread here, giving me eternal place in heaven'. Now, can you imagine a more revolutionary approach, a more revolutionary statement than this in 1893 ? On the same lines Gandhiji said that 'to a hungry man God appears as a loaf of bread'. Now, see the parallelism. See the continuity in thought between these two great men. He was, in addition, totally in favour of borrowing liberally from the West to energise his country. 'From the great dynamo of Europe', he said, 'the electric flow of that tremendous power vivifying the whole world—we want that energy, that love of independence, that spirit of self-reliance, that immovable fortitude, that dexterity in action, that bond of unity of purpose, that thirst for improvement'. He saw all these qualities in the Western society as long back as a century ago. He could see the good and the not so good. He could balance both. He could see both sides. He could choose the good while leaving out what was not so good. He had that catholicity, which is a great trait in any saint who becomes the leader of his people.

When Swami Vivekananda emerged as Shri Ramakrishna's principal disciple after his death in 1886 the social canvas on which he chose to work was wider than the one on which the Saint of Dakshineshwar had inscribed his life's work. Since time immemorial, in the wanderings of the Buddha in the Fifth century B.C. or of Shankara in the 8th Century A.D., the notion of a pilgrimage or a Bharat Parikrama across the country constituted an essential ingredient of the education of spiritual men in India. In 1888 Swami Vivekananda undertook such a journey to interact with men of religion elsewhere within Indian and to gain an understanding of the social and spiritual climate of the country as a whole. In fact, in the life of an average Hindu, the Vanaprastha means this. He is not supposed to reside at any place including his home He has to leave his home, go form place to place, learn from the people, transmit to the people what he has himself learnt from life. This is the kind of total education which is woven into the life of an average Indian. So, this is what really is meant by Parikrama. As for great people, they go all over the country. Smaller people, they can't go all over the country, they go wherever they can, to the extent they can.

Inspired Vision

The Bharat Parikrama both widened and deepened his understanding of the spiritual unity of India and at the same time it provided him with an assessment of the national work that needed to be done. Swamiji's spiritual wanderings finally brought him to Kanyakumari, the Southern tip of the peninsula. While he was in Kanyakumari, he spent a full night awake reflecting over what he had seen and heard during the course of his Parikrama. In the course of these reflections, in the still of the night there emerged before him an inspired vision of India, as a spiritual and social entity, made up of diverse cultures and religions yet linked together in a truly liberal and overarching civilizational unity. Also in the course of these reflections, Swamiji saw the role which could be played by dedicated Sanyasis in improving the lot of the common-folk and in strenghening the unity of India through a new spiritual and social consciousness, the Rasthra Chetna, open and democratice and at the same time firm and cohesive. All this was henceforth to be his life's work.

The last stages of Swami Vivekananda's Bharat Parikrama were witness to a decision which affected his spiritual career in a most remarkable fashion. A World Conference of Religions was scheduled in Chicago in 1893 and for that, some time before, Swamiji had toyed with the idea of placing before this assembly his understanding of the Sanatan Dharma. The experience of the Parikrama encouraged Swamiji to decide in favour of attending the World Conference. To gain a full appreciation of Swamiji's spiritual achievement at the World Conference of Religions in Chicago in September 1893, it is necessary to dwell briefly on how the West perceived Hinduism in the last quarter of the 19th century. This is important because today perception is not very different from what it was some time ago. We have come a long way. The Hindu religion is not only taken as a religion. Many leaders of the Hindu faith have gone abroad, have done wonderful work there. But still something ghastly happening in India defaces Hinduism

everywhere in the world and this is what I would like to remind you has happened recently in this country.

India lay prostrate before British Imperialism at that juncture (in the last quarter of 19th century) and she was known to humanity as a country burdened with poverty, ritualism and superstition. She was, so the world believed, also bereft of any larger moral vision. An eminent Englishman described the religion of the Hindus as 'idolatory with all its rabble of impure deities, its monsters of wood and stone, its false principles and corrupt practices and its lying legends and fraudulent impositions'. Now, you can imagine how from that state of affairs Swami Vivekananda lifted up India in the eyes of the Western people, of the whole world and that is a real measure of his greatness, of the service which he rendered to his motherland.

Chicago Address

The words of Swami Vivekananda in Chicago took the assembly and indeed the entire Western world by storm. In one stroke Vivekananda had dramatically transformed the Western image of the Sanatan Dharma of the Hindus. As a delegate to the Conference observed, Vivekananda was, beyond question, the most popular and influential man in the gathering. An important newspaper in Chicago described him as an individual of towering stature and one who was the master of his situation.

How can we relate the truly liberal vision of Swami Vivekananda to the dissemination of Rashtra Chetna in our country today ? That is the question facing all of us and it is not a very easy question to answer. How can we also seek to narrow the gulf that has opened up between different religious communities in our times through drawing upon the life and thoughts of Swamiji. These were the questions which our distinguished leaders of different religions, rich in their understanding of spiritual matters and of the deep anguish of our people, can answer much better than ordinary politicians. However, I would like to emphasise that the answers are most urgent today. We want them now. We have no time to lose because India will face a catastrophe if we do not find the answers absolutely clear, make them clear to the people, make the people not only understand but feel those answers, bring them into their lives and see that the entire life fabric of the nation changes at the earliest, as early as we can make it. Can we ? That is the question. It is needed now as never before. May I in all humility say what my limited perception tells me. I feel that the message of tolerance and openness, of fellow-feeling and friendliness for all religions and of the essential unity of all spiritual experience which Swami Vivekananda delivered before the world a hundred years ago, is as relevant for Hindus, Muslims, Christians, Sikhs and all the religions today as it was relevant for them when it was originally voiced. In fact, it is much more relevant today.

Swamiji captured in his inspired utterances the true spirit of the Sanatan Dharma as he saw it in the closing decade of the last century and as it indeed stands in our times today. Perhaps the Rashtra Chetna which we are seeking to arouse in our country can draw profitably upon the notion of what was noble and perennial in our Dharma to fashion our nation into a harmonious polity whose citizens can lead a life of moral dignity and material plenty. Such a consummation would be our best homage to Swami Vivekananda whose life and work we commemorate today.

The politicians, the social workers, every one in the country have to have a hand in this great journey towards truth, towards unity, towards integration.

□

Religious Pluralism And Peaceful Co-Existence

Dr. S. Gunasekaran and Dr. S. Dhanasekaran

It is imperative for an individual and society to set the right type of values and life enhancing principles. The selection of such values and their inculcation perpetuates the stability and growth of human society. Therefore, 'every man or individual is known by the standard of values he uses' Here comes the role of religion to make the value-choice for developing an integrated human being, the basic unit of a harmonious human society

Religion, in a broader sense, has been preoccupied with the task of maintaining a profound harmony between various aspects of life; the eastern mystic wisdom, particularly the Indian tradition, after a deep analysis and through study of the integral components of individual, emphasizes the balanced development of three vital faculties of human being, viz body, mind, and spirit or soul. Every religion is a unique attempt in a way to keep alive this core philosophy so as to attain a humane and orderly society. But in the course of history, in response to the materialistic quest for life, man has had to misuse religion, deviating from the ethical trace. As a result, religions have been segregated considerably by man from their ethical ground, to become a part of political power game, and socio-economic exploitation, giving rise to multifarious problems. In situations like this, it is the responsibility of every law-abiding citizen or individual who believes in decent, peaceful living, to understand the implications of all religious teachings and heir oneness at the core, as also to work collectively for the cause of common welfare. Such a kind of understanding in tune with an alternative non-violent life style is indispensable for a multi-religious society in the modern times.

Religion is evolved to solving the inherent problem and conflicts within and between human beings. In popular terms, 'as many problems to as many individuals and their collectivity, so many religions'. Every religion is an individual path, devised to refine man physically sound, mentally agile, and spiritually elevated. It is with the help of such refined human beings, religion aims at a peaceful society, in accordance with the harmonious functioning of the Universe. Thus leading man towards higher life becomes the very essence of every religion. In the words of Arnold Toynbee, "Religion is a faculty of human nature....... To have religion is one of those distinctively human characteristics of mankind that differentiate us from our non-human fellow animals on the face of this plant......in fact, one cannot be human being without having it in some form".

The basic idea behind every religion is that, man is the microcosm of the whole macrocosm, i.e. the Universe; he is just a part of that Absolute Truth—the Omnipresent cycle of harmonious order enshrined in the form of a Universal Being. Religion perceives this cosmic reality, an embodiment of serenity, orderliness and peace, as "one inseparable reality—forever in motion, alive, organic, spiritual and material at the same time.

This mighty natural force as we learn from mystic wisdom, does not direct man from above, but controls and pervades everything from within, and is symbolically represented as God :

"He who, dwelling in all things,

Yet is other than all things,

Whom all things do not know,

Whose body all things are,

Who controls all things from within—

He is your Soul, the Inner Controller,

The immortal". (Brihadaranyaka Upanishad, 3.7.15)

Thus the Supreme Being—God, is personified as the Unified Whole. All creatures are like innumerable cells, which constitute this integrated Mega Body. In such a set up, there is no scope for discrimination among various creatures. It would imply that every human being is not simply an

indivisible part of the other human beings, but the entire family of fellow creatures. Then one man or a group cannot afford to commit violence or work against each other. This unique religious approach is a laudable attempt to elevate man towards divinity, to become one with the cosmic Reality by discipline, spiritual training, and self-realization.

Human Welfare

To put it in the sociological language, religion is a major institution established for the cause of human welfare, cooperative living and also the realisation of oneness of the human race.

Truth, love, faith, tolerance, and service constitute the cornerstones of every religion. True religion exists when such core principles are manifested in human action, and real-life situations. Otherwise, mere ritual, recitation and dogma can never represent a true religion Thus Swami Vivekananda has rightly remarked that, 'Religion does not consist in dogmas and creeds, temples and churches, rituals and ceremonies; it is being, and becoming, it is realization. It is a manifestation of the divinity already in man'.

Pluralism in its philosophical connotation is an antidote of the attempt to reduce all reality to either one or two ultimate forms of being According to pluralism, Reality is neither one or two, but many. In its core, pluralism is an emphasis upon the many-sidedness and variety of the world; it stresses the manifold character of the world, its variety and richness, its infinite deversities and novelties, even its discords and dissonance.

Pluralism signifies the existence of different human groups belonging to diverse background, especially in the realm of ethnicity, polity, and religious belief. In the religious perspective, pluralism is an attempt to encourage and pursue inter-religious co-existence, as well as the formation of attitude which would help an individual to see every religion as his own with equal respect and commitment. While at the same time, it does not lose sight of the need for maintaining the independent spirit and approaches of every individual religion. Moreover, pluralism would allow us to give real objectivity to such concepts as inter faith harmony, love, justice, truth and peace. Religious pluralism, is therefore, a way of life, which enables people of diverse religious faiths to live together with share and care approaches.

The idea of religious pluralism and the need to look into their essential complementarity, and the broader view of diverse religions together for common welfare, has been emerging gradually world wide from the last few centuries. It has become more pronounced in the recent times. Many religious leaders, monks, saints, rishis and reformatory movements have been forming a pivotal force for the inter-religious harmony and cooperative living.

Indian Experience

India is a land of remarkably unique religio-cultural traditions. It has been the home and nursery of all major religions of the world. To make people spiritually elevated, socially cultured, and culturally tolerant, and to make them understand the fraternity of humankind, major religions were born in India—viz., Hinduism, Buddhism, Jainism and Sikhism; Christianity in India is as old as Christian religion in its homeland. St. Thomas came to the western coastal India and embarked his great missionary life in South India. Gautam Buddha developed Buddhism as a reformative of Hinduism by retaining the core principles. Similarly, Jainism and Sikhism developed from the cross-fertilization of reformative ideas and the quintessence of Indian cultural traditions. Yet another major religion, Islam, has become a part of the Indian religious heritage in the course of history. Moreover, India has been a sociological laboratory, where the seeds of inter religious peace were sowed, sprouted, nurtured and blossomed with a positive will of collective consciousness and 'respect for all religions'. As a result of this, traditionally religions in India have co-existed in amity and understanding. However, there have been sporadic incidents of communal intolerance and outbreak of bloody communal violence. It has, in modern times, got a number of soico-economic and political affiliations in general, and due to the short-sightedness of certain religious fanatics and fundamentalists, in particular. Such unpatriotic and irresponsible leaders and religious cadres, perhaps, have had not properly been educated and fairly failed to discipline themselves and channelise their passions and feelings to relaise the 'ultimate oneness' of all religious teachings.

Raja Ram Mohan Roy (1772-1833), the father of modern India as often called, founded Brahmo Samaj, especially to propagate social and religious reforms. His religious ideas had assimilated elements from Islam, Christianity, the Upanishads, and modern European liberal philosophy. He propounded the concept of one God of all religions and humanity.

Likewise, Mahatma Gandhi viewed that, 'religion is one tree with many branches. As branches you may say, religions are many but as tree, religion is one'. He tried to visualise a future oriented universal religion based on truth and non-violence or love. He declared that "my religion is based on truth and non-violence. My religion forbids me to hate anybody. Religion is not for separating people......it is to bind them". It is now in the interest of peaceful human

living, to safeguard our 'common future', and restore planetary survival, inter-religious approach is very much required.

Pseudo-religions, their blind inhuman preachings should go, and ethical religions and their teachings should be manifested into our way of life. To effect this, the people of India, and people from multi-religio-cultural background, will have to sensitise themselves that no true religion preaches against another religion. In addition, the core of all religious traditions—the unity of mankind, has to be incorporated into their thought and life It is indispensable because all religions are the various branches of a single holy tree—which kindle the people to have their inspiration and the ultimate light (i.e. wisdom and peace) from the creator of the universe through relentless pursuit of steadfast wisdom so as to attain salvation, or *Nirvana*, or *Moksha* or liberation of soul and fulfilment of life

Bhagwan Buddha exhorted his fellow beings "Hear . O Bhikkhus : the noble Truth of the Pathway which leads to the cessation of suffering · Right belief, Right Aspiration, Right Speech, Right Conduct, Right Means of Livelihood, Right Exertion, Right-mindedness, Right Meditation" We find similar kind of expression in the Bhagavat Gita also, which holds, that one who, abandoning all desires, walks without attachment, free from selfishness and vanity, attains peace; on the other hand, as Islam views, "There is no compulsion in religion The right direction is henceforth distinct from error And he who rejects false deities and behaveth in Allah hath grasped firm handhold which will never break. Allah is Hearer, Knower, and your Protector. And Allah by His will guideth those who believe unto the truth of that concerning which they differed. Allah guideth whom He will unto straight path".[1]

(Surah 213, 256, the Quran)

The Jain tradition emphasizes the individual freedom and social justice. The most important lessons which one can acquire from the great life of Mahavira are many. They are grounded in the following three major principles :

1. Right faith,
2. Right knowledge,
3. Right conduct

These principles focus on the individual attitude formation as a prerequisite for self-control, the practice of ahimsa (non-injury and non-violence) and also tolerance and appreciation of others point of view.

The multi-religious effect on the Indian thought and life is quite a remarkable one. The cumulative effect of these diverse religious traditions has made constant impact in the form of tolerance, religious-amity, fraternal bondage and co-existence, despite the sporadic outbreak of serious communal conflicts. Of course, this composite Indian tradition has also developed certain peaceful and non-violent way-out for ages, to solve such communal aberrations.

History tells us that the natural and cultural wealth of India attracted many other ancient civilizations and they had established trade contacts for centuries It was only after the Middle Ages, that India was politically and economically encroached upon by the European traders with the help of their technological supremacy. The parasitic and predominently violent imperial exploitation of elite European countries, perhaps, caused serious damage to the age-old non-violent socio-economic and peaceful religio-cultural foundation of Indian life and heritage.

The legacy of alien invasions, colonialism, and the resultant destruction of indigenous, interdependent way of Indian life nourished introlerance and religious fanaticism. Also they hatched out a host of monsterous problems like communalism, casteism, class-struggle and so on. The rise of terrorism in Punjab, Kashmir and Assam in the recent decades is due to the ruthless manifestations of religious fanaticism, separatism, economic exploitation, perpetrated by vested interests of certain short-sighted pseudo-politicians, communal leaders, religious fundamentalists and anti-social elements. In such a situation of peacelessness and overt violence, every rational human being is in the lookout for an alternative peaceful path

Collective Understanding

The people of all religious traditions, of diverse cultural background, like ours in India, should realise and can do a lot to preserve the changes that have improved the human conditions with the help of scientific and technological advancements. Such desirable changes and their constructive force would prove to be effective in addressing to those serious problems that still remain before us. However, human greed, selfish interest and pride—the triple sources of misery will not disappear just by a change of century, or verbal slogans or even the change brought by modern science and technology. We must keep alive the conviction that the achievement of human happiness and fulfilment is dependent upon higher spiritual laws and powers which enable us to believe and work that peace is possible.

Every religion attempts to establish cooperation among people not only in the physical plane, but essentially spiritual and attitudinal coherence to realise stable peace and the ultimate cosmic being. People from diverse religious faiths ought to realise and reorient their thinking and life after a thorough understanding of the following facts as revealed by our ancient wisdom : 'We are sustained

by a spiritual trust—our belief in the creative forces within the universe by which we are given life, in which we find spiritual trust is liberating and enabling. It is based on our living in harmony with the sources of our being, with other humans and with all of nature'.

We the people of various religious traditions have to universally erase the physical and psychological boundaries of each of our religion, and work for the common welfare; otherwise destruction will be devastating, certainly a mutally assured destruction, as religious ideologies are now-a-days coupled with the violence and militerization both at the domestic and international sectors of life. The preservation of our religious ethos, our common future more importantly lies in the universal fact that the various religions of world are various sects of a single eternal religion (a formula to live in peace and security). Thus Swami Vivekananda says:

"If there ever is going to be an ideal religion, it must be broad and large enough to supply all these minds: It must supply the strength of philosophy to the philosopher, the devotees' heart to the worshipper; to the ritualist it will give all that the most marvellous symbolism can convey, to the poet it will give as much of heart as he can take in, and other things besides. To make such a board religion, we shall have go back to the time when religions began and take them all in".

Let us all, irrespective of our religious, cultural, socio-economic diversities, rededicate ourselves to and collectively work for the cause of peace, unity and welfare of all, realizing the universal fact that we are all children of God. □

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An Analysis Of Employment Position Of Women In Talala A Case Study

Arun K. Ghosh and Prodipto Roy

The present paper makes an attempt to estimate the changes in the employment position and incomes of women in Talala block of Junagadh district of Gujarat based on a two time study with data of 1971 and 1988. It throws some light on the extent to which the changes in the employment position of women have taken place over the period under review. In spite of three successive drought years between 1986 and 1988, the employment position of women has improved in terms of percentage of workers as well as in terms of workdays, the study reveals.

THE Employment position of women and their contribution to household income varies according to the conceptual definition of the term "economic activities" It is indeed very difficult to make any proper estimate of employment position of women and their contribution to household income because of practical and theoretical ambiguities involved in distiguishing between economic and non-economic activities. A United Nations report concluded that "accurate figures on women's economic contribution are almost impossible to attain in most parts of the region. In the non-market sector where most women work, the distinction between economic and non-economic activities is seldom clear and most arbitrarily applied. The work activities of many women have only a weak attachment to the traditionally defined workforce". Though the bulk of women are engaged in household chores, many of them also pursue activities from which they derive benefits for their households "Participation in some of these activities, though gainful in nature, is not reflected in the usual indicators of employment (and income) particularly where the activity pursued is a border line case of economic activity".

Most of our studies related to employment position of women and their income based on census and sample survey reports, give only a conservative estimate of the employment position of women and their contribution to household income. The household surveys often underestimate the economic contribution of women to the households especially those women who are working in their farms along with other male members. Anita Dighe shows how the census definition of 'worker' with its emphasis on 'economically productive' and full-time work tends to exclude a vast majority of women and regard them as no-workers. Many women are engaged in economic agricultural activities and thus contributing to family income but their earnings have been shown against the male members. They are engaged in economic activities as

unpaid family workers. Thus a woman can not be a primary earner as long as there is an adult male in the household. A very broad estimate of employment and income, however, include not only economic activities on which the women are engaged as unpaid workers but will also include those domestic activities which otherwise would need to be performed by paid workers to achieve the same result. But it is difficult to compute the economic value to non-market domestic activities.

Our estimation of employment and income of women tends to be conservative in the sense it did not include the valuation of non-market domestic activities of employment position of women and their contribution to household income. In subsequent discussions of our paper we have considered a woman employed if she has worked in some gainful activity for a specified period as a full—time worker (i.e. employed for more than 6 hours per day) as well as part-time (i.e. employed for less than 2 hours per day) in the main and subsidiary occupations

The present paper makes a attempt to estimate the changes in the extent of employment and income earned by women in Talala block of Junagadh district in Gujarat based on a two-time study with data of 1971 and 1988. This paper is a focussed analysis of data from the study on Rural Employment Programmes under taken by the Council for Social Development which was sponsored by the Planning Commission, Government of India.

A sample similar to the two-stage self-weighting sample method used in 1971 was adopted in 1988 to select the households on a probability proportionate to size (PPS) as was done in the growth centre study. The resultant samples consisted of 247 households in 1971 and 245 households in 1988. Looking back at the performance of the various rural development programmes in Talala over the seventeen years between 1971 and 1988, it was found that these programmes have progressively transformed the agricultural scenario in the block. The changes in cropping pattern and increased use of fertilizer and improved varieties of seeds have resulted in much higher yields in agriculture However three successive droughts between 1986 and 1988 have largely nullified the advantages of these development programmes. "In Talala despite the agricultural crop intensification and the contribution of about 50,000 additional mandays under various employment generation programmes, there was a reduction in average employment from 250 to 224 days... All these facts may only reflect the short-term effects of the drought from 1986 to 1988 in Gujarat".

One can presume that the effects of three successive droughts have been felt on employment position of women in Talala. The present paper attempts to analyze these data separately to assess the impact on the employment position of women in Talala. It cannot be presumed that since the average employment position of the total workers of the sample households has decreased in terms of number days, it has has the same effect on employment position of men and women.

The total population of the sample households has decreased from 1699 in 1971 to 1499 in 1988. The female population has decreased from 806 in 1971 to 689 in 1988. However, the number of female workers has increased from 51 to 78 during the same period. The following table shows the sex wise distribution of population and workers.

As shown in the Table 1 that though male as well as female population had decreased there was an increase in the number of male and female workers.

Table 1

Sexwise distribution of Population and Workers

Population						Workers					
1971			1988			1971			1988		
M	F	T	M	F	T	M	F	T	M	F	T
893	806	1699	803	689	1492	415 (46.5)	56 (7.0)	471 (27.7)	423 (52.8)	101 (14.7)	524 (35.1)

Note : Figures in bracket are percentage of workers to the total population.

Employment

The analysis of data further shows that the average workdays for women have increased while those of male workers have decreased substantially. Table 2 shows the average workdays for male and female workers.

The table shows that while there has been a decrease in average umber of workdays of the male workers from 264 days to 239 days, there has been an increase of number of workdays of the female workers from 149 days to 160 days. What is striking is that the average workdays for male workers have been reduced by 25 days while those of female workers have increased by 11 days.

There has been a shift in the occupational pattern of female workers in Talala. Table 3 shows the occupational distribution of female workers according to number of days of employment in 1971 and 1988 in Talala. As shown in the table that the major shift has taken place from agricultural labour to non agricultural labour. A shift of women workers from agriculture labour to non-agriculture labour can be explained by the fact that there has been a decline in the real wage for agriculture labour due to three successive droughts and demand for non-agriculture labour generated through various labour intensive programmes such as National Rural Employment Programme (NREP), Rural Landless Employment Guarantee Programme (RLEGP), etc. However the percentage of female earners in agriculture has increased to some extent inspite of these droughts. The reason may be attributed to the fact that more females were required

Table 2

Average workdays for male and female Workers

	Male earners		Female earners	
	1971	1988	1971	1988
No. of earners	5415	423	56	101
Total workdays	109,380	101,232	8,370	16,144
Average workdays	264	239	149	160

Table 3

Occupational distribution of female workers of sample household according to number of days of employment in Talala, 1971 and 1988

Occupation	Less than 100 days		100-200 days		More than 200 days		Total Female earners	
	1971	1988	1971	1988	1971	1988	1971	1988
Agriculture	—	4 (3.9)	7 (12.5)	15 (14.9)	2 (3.6g)	5 (4.9)	9 (16.1)	24 (23.7)
Agriculture Labour	9 (16.0)	1 (1.0)	31 (55.4)	12 (11.9)	5 (8.9)	2 (1.9)	45 (80.4)	15 (14.9)
Non-Agriculture Labour	—	7 (6.9)	—	41 (40.5)	—	8 (7.9)	—	56 (55.4)
Service	—	—	—	—	—	6 (5.9)	—	6 (5.9)
Shopkeeper	—	-	—	—	2 (3.5)	—	2 (3.5)	—
Total	9 (16.0)	12 (12.0)	38 (68.0)	68 (67.0)	9 (16.0)	21 (21.0)	56 (100)	101 (100)

Note : Figures in brackets indicate percentage

to look after the land because of shift of male workers to industry, trade and other no-agricultural occupations.

So far as the number of days the female workers worked in various occupations is concerned, it was found that there has been a significant improvement. The table shows that in 1971, 16 percent of the working women worked for less than 100 days while in 1988, 12 percent of the working women worked for less than 100 days. Again in 1971, about 16 percent of the female workers were engaged for more than 200 days while in 1988, as many as 21 per cent of the female workers were engaged for more than 200 days. This certainly indicates a significant improvement in employment position of women in Talala.

Another significant change was noticed in the service sector. In 1971 there was no women engaged in service. But in 1988, at least 5 women (6%) were engaged in service. This is due to increase in percentage of females attaining education upto high school and graduate level. Table 4 shows the education level of the members of the sample households.

As shown in the above table there has been very significant changes in the levels of education and literacy. While the overall literacy levels have increased from 29 percent to 57 percent, female literacy increased from 21 percent to 48 percent which is higher than the national average.

Income

Although actual earnings per day in both agriculture and for agricultural labourers had increased by 300-400 percent they have declined marginally when deflated to the 1971 prices. Table 5 shows the umber of days worked and earnings of working women in various occupational categories in Talala.

Table 4

Educational Level of Members of Sample Households of Talala : 1971 and 1988

Educational Level	1971			1988		
	Male	Female	Total	Male	Female	Total
Literate (below primary)	136 (15 2)	131 (16 2)	267 (15 7)	87 10 8)	62 (9 0)	149 (10 0)
Primary	149 (16 7)	34 (4 2)	183 (10.8)	260 (32 4)	166 (24 1)	426 28 5)
Middle	37 (4 1)	2 (0.3)	39 (2.3)	119 (14 8)	75 (10 9)	194 (13 0)
Secondary	6 (0 7)	0 (0 0)	6 (0.4)	39 (4 9)	27 (3 9)	66 (4.4)
Graduates	2 (0 2)	0 (0 0)	2 (0.1)	11 (1 3)	2 (0.3)	13 (0.9)
Total	330 (37 0)	167 (20 7)	497 (29 3)	516 (64 3)	332 (48 2)	848 (56.6)
Illiterate	563 (63.0)	639 (79 3)	1202 (70.7)	287 (35.7)	357 (51.6)	644 (43.2)
Total Population	893 (100)	806 (100)	1699 (100)	803 (100)	689 (100)	1492 (100)

Note : Figures in brackets indicate percentage.

Table 5

Number of days worked ad earnings of Working Women in Talala

Educational	Average days employed		Average Annual (in Rs.)		Earning per days (in Rs.)	
	1971	1988	1971	1988	1971	1988
Agriculture	168	165	3563*	12788* (3154)	21.21*	19.12* (77.5)
	A2	A3	A5	A6	A8	A10
Agriculture	135	162	400	463 (1877)	2.96	2.86 (11.58)
Non-Agriculture Labour	—	142	—	403 (1635)	—	2.84 (11 51)
Shopkeeper	—	300	—	NA	—	NA
Service	—	300	—	2713 (11000)	—	9.04 (36.66)

Note : Figures in brackets indicate the actual value in 1988 Where as others refer to real value at 1971 price level.
*Agriculture Income refers to gross income.

Table 5. indicates that the average number of days worked as agriculture labour has increased substantially ; earings per day has been reduced marginally. This marginal reduction in earnings both in agriculture and agriculture labour could be explained by the same factor i.e. drought.

The conceptual definition of employment as adopted for our analysis makes a conservative estimate of employment position of women and their contribution to household incomes However, such an annalysis utilizing two-time data spanning 17 years throws some light on the extent of change in the employment position of women. The foregoing analysis shows that inspite of three successive years of drought between 1986 and 1988, the employment position of women after seventeen years has improved in terms of percentage of workers as well as in terms of number of work-days The percentage of female workers to the total population has increased from 7.0 percent in 1971 to 14.7 percent in 1988 and the average work-days have increased from 149 days to 160 days during the same period.

There has been a major shift in occupational distribution of female workers from agricultural labour. The per centage of female labour to non-agricultural decreased from 80 percent to 15 percent. In 1971 there was not a single woman who was engaged in non-agricultural labour. Due to implementation of various employment generation schemes like national Rural Employment Programme (NREP), Rural Landless Employment Guarantee Programme (RLEGP), etc. the percentage of non-agriculture labour has gone upto 60 percent of the total female workforce in 1988 Whatever might be the change in the occupational pattern, earnings per manday in both agriculture and agricultural labourers although have increased over three-fold they have actually reduced in terms of real incomes. □

The Behaviour Of Small Savings In India

Bharati Pandey

THE basic paradigms of development assume that saving occupies an important place in the process of growth. Hence, one of the major objectives of economic planning and policy is to encourage savings in order to accelerate the pace of growth. The behaviour of small savings is determined by the behavioural pattern of total savings of the economy. We may, therefore, hypothesise that the basic determinants of total savings in the economy are also the factors which significantly determine the magnitudes, role, contribution and more specifically the behaviour of small savings. The numerous factors which chiefly affect the magnitude and behaviour of savings are : income, interest rates, tax rates, wage rates, prices etc.

In the scheme of resource mobilisation, small saving occupies a distinctive place. An attempt has, therefore, been made in this paper to investigate into the trend and the pattern of the behaviour of small savings. Planwise data relating to small savings have been presented in Table 1 below.

Small savers' desire to save depends overwhelmingly on the fiscal and monetary incentives which are provided by the Government. Strikingly, about 30% of small saving is done just for the sake of availing of tax exemptions. The recent experience relating to small savings show that there has been a sudden decline in the magnitude of small savings during the first six months of 1991-92, despite the fact that interest rates on deposits were raised in order to attract more savings. Such a trend may well be attributed to the fiscal policy initiative of taxing the interest-earnings which irresistably had adverse impact on people's desire to save. The resultant gloomy scenario pertaining to small savings compelled the Government to appoint the Committee on Small Savings under the Chairmanship of Dr. C. Rangarajan to enquire into the factors which caused such a downward trend in the volume of small savings.

The conclusion that emerges is, small savings are more responsive to fiscal changes than monetary/interest rate changes. This being the case, it is imperative that in order to increase the magnitudes and coverage of small savings the Government should come out with a new package of fiscal inscentives to be provided to small savers, so that small savings could be attracted in a significant manner. ☐

TABLE-1
Contribution of Small Savings to Financing Five Year Plans

(Rs. crore)

Plan	I	II	III	IV	V	VI	VII
Aggregate Resources	1,258	4,800	7,500	15,902	39,302	97,500	1,80,000
Small Savings	270	500	600	769	2,022	6,463	17,916
Small Savings as % of Aggregate Resources	21.46	10 41	8 00	4.84	5 15	6.63	9.95

Source : Government of India, Planning Commission, Five Year Plans.

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New Role For Trade Unions

Dr. S.S. Khanka

IN India, trade unions are confined to the organised sector which comprises barely 10 per cent of the country's total work force. In the context of the present technological explosion and India's massive drive to catch up with the developed countries in the field of science and technology continually introducing radical changes in the production procedures and environment, the trade union movement should change its attitude, approach and practice.

One erroneous impression hitherto gained ground has been that the trade unions in India are opposed to modern technology. Undoubtedly, there has been mistrust and suspicion among the trade unions and the employers about the introduction of modern technology in industry. The reason is that the workers were taken for granted and were not taken into confidence before resorting to labour-saving automation in the garb of modernisation that rendered a large number of workers jobless to which the trade unions were naturally opposed. Modern technology, no doubt, leads to enhanced productivity, both by men and machines and improved quality of goods. Besides, the ever-changing technology also brings about a notable transformation in the life style of the individual within and outside his working life, as a consumer of goods and services. Work in the changing technology, therefore, does not merely satisfy the economic needs of the individual, but also influences the worker's behaviour and attitude towards his/her life as well as society.

So far as India's lag in the field of modernisation of the production process is concerned, both the employers and the trade unions have to share the blame. The employers view modernisation as a blind resort to import of automation and rationalisation of the work force. On the other hand, trade unions are often opposed to modernisation because of the apprehended loss of jobs to a large number of workers. In view of the fact that modernisation leads to enhanced productivity, both the employers and the trade unions need to change their attitude towards the application of the modern technology. The trade unions will have to come out of their traditional role and strive hard for a dynamic trade union programme that can effectively meet the challenges of the changing technology. They should ensure that measures for increased efficiency are relevant to employment and working conditions.

Grave Problem

Admittedly, there are some grave problems also. The biggest problem defying solution is growing unemployment year after year. In industry, the magnitude and severity of unemployment is alarmingly aggravated by the increasing incidence of sickness and consequential closures, rendering thousands of workers jobless. To quote, the number of all types of sick units has increased tremendously by nine-times to 221,097 as at the end of March 1990 from 24,550 as at the end of December 1980. Outstanding bank credit against them has gone up by more than three-times over the same period from Rs. 1,809 crore to Rs. 6,966 crore. At the end of March 1990, an outstanding bank credit of Rs. 6,966 crores constituting about 9.5% of the total bank advances and 17.6% of the outstanding bank credit to industries was locked up in more than 2.2 lakh sick industrial units getting assitance of commercial banks. The incidence of sickness is particularly high in the textile, jute and engineering industries which miserably failed to keep pace with modern technology. The textile industry in countries like Japan, South Korea and Taiwan introduced mass technological innovations years ago. They are presently in a commanding position in the international market. On the contrary, the countries that resorted to modern technology in a sudden and unplanned manner led to large scale redundancy in their work force resulting in growing unemployment. Therefore, it is imperative for the trade unions to realise and accept these changes and find out mutually accepted solutions protecting the rights and future of the huge work force, on the one hand, and economic viability and future growth of the industry itself, on the other. Here, one can refer to such an example of the Indian Iron & Steel Co. (IISCO) at Burnpur, West Bengl in which all the workers' unions and the management reached an agreement for the modernisation of the company.

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Silk Production In Kashmir

Kashmir, famous for its majestic mountains and shining glaciers, is also one of the richest States in flora and fauna. Primarily an agrarian State, Kashmir is also gifted with favourable climate suitable for production of valuable items like saffron, fruits, wool and silk.

The occupation that is becoming extermely remunerative in the State now is sericulture-the process of production of silk through cultivation of mulberry and rearing of silk worms. Infact, Jammu and Kashmir is the only bivoltine area offering immense scope for the production of high grade raw silk of international standards. Mulberry leaves, essential for silkworm rearing, can be grown well in the clay-loam to loam woil available in Kashmir Valley or in the loam to sandy loam soil of Jammu region.

Sericulture is a rural agro-based industry It needs very low investment and gives high return. A sum of Rs. 8,000 to 10,000 is sufficient for undertaking mulberry cultivation and silk worm rearing in one acre of irrigated area and under rainfed conditions it needs only Rs. 4,000 to 5,000 per acre.

Low investment, more employment and quick returns have made sericulture an ideal vocation for the weaker sections of the society. Once mulberry is planted it takes only six months for initiating silk worm rearing and later, once in every 45 days a crop can be taken Through systematic rearing methods, a farmer will be able to get at least a net profit of Rs. 20,000 per acre per year The dwarf variety of mulberry is cultivated in aboujt 1525 hectares in the State.

Sericulture industry provides full time employment to about 5,000 families in different sectors of sericulture in Kashmir and part time employment to about 30,000 families.

Various promotional measures are undertaken by the State and Central Governments for the speedy development of sericulture in the area. Recently the State Government demonopolished the industry opening up opportunities for small traders and making the industry more competitive.

Board's Activities

The Central Silk Board is sparing no efforts to offer assistance and supplementing the State Government's efforts to give a boost to the sericulture. A Regional Sericulture Research Station has been set up at Pampore and two research extension centres for mulberry have been established at Tral and Sundarbani.

The Board has set up two basic seed cocoon farms at Mansabal and Miransohb. Grainage-cum-cold storage centres at Bangil and Udhampur were also set up apart from the Regional Tasar Research Station at Batole for the development of oak tasar silk. A silk Conditioning and Testing House at Srinagar and a Sericulture Training School in Anantnag district provide valuable inputs to the silk industry of the State.

The Central Silk Board has achieved a remarkable success in its efforts to promote sericulture in the State About 25 lakh mulberry cuttings and 98,000 mulberry saplings were supplied to about 1900 farmers during the last two years. Similarly 2.41 lakh silk worm seeds of bivoltine variety were provided to the farmers and training for sericulture techniques imparted to voer 300 farmers. The number of basic seed farms has gone upto 10 while there are 24 industrial grainages. The State at present has about 1500 handlooms and rod power looms to utilise the silk produced. As a result of all these efforts silk worth Rs. 26.55 crore was produced for export in 1989-90.

Under the National Sericulture Project, 2560 hectares were brought under mulberry plantation in 1989-90 and it is expected that about 400 hectares more nurseries are also going to be added to overcome any shortage of saplings.

Outlay

The State Government has spent about Rs. 750 crore under the Seventh Plan for the development of Sericulture. The Central Silk Board's contribution in this was Rs. 364 crore. The approved outlay for Jammu and Kashmir for implementation of various sericulture schemes for 1990-91 was Rs. 150 crore. An additional provision of Rs. 250 crore was made for 1990-91, in order to implement the National Sericulture Project.

The future programme of the Central Silk Board is further strengthening the available facilities. Accordingly, a programme has been initiated to strengthen the Regional Sericulture Research Station and to establish a Demonstration-cum-Training Centre. In addition, a new unit is also to be set up for improving farm rearing and reeling equipment. Four more Technical Service Centres (TSCs) are expected to be established apart from the two TSCs functioning at Teal and Rajomir. □

Neem-A Natural Pesticide

Dr. R. Ray, Dr. R.C.Yadav and P.P. Singh

NEEM, an important Indian tree, has recently attracted the attention of agricultural scientists for its usefulness as a pesticide and its ability to provide a pollution free protection to plants It has pharmacological uses and its dry leaves are being used for cotnrol of store grain pests from ancient times. Now scientists are exploring how to utilise this property of neem more effectively.

Dr. S. Pradhan, an Indian entomologist reported for the first time in 1962, the antifeedant property of neem kernal against desert locust Since then a number of studies on the insecticidal properties of various parts of neem has been conducted and several biological effects of oil, kernal, cake and their chemical extracts have been discovered

Neem can grow in diverse agro-climatic conditions According to an estimate by Khadi and Village Industries Commission there are about 140 lakh neem trees all over India

The kernel is the most active part of the neem so far as the biological effect is concerned As many as seven distinct chemicals of insecticidal properties have been isolated from it

The most extensively studied properties of the neem products are antifeedant activity, growth disruption effect and toxic effects.

Antifeedant :

As many as about 70 insects of different orders have been found to be affected by this property of neem. However, the sensitivity of insects to neem varies and variation in this regard does not follow any pattern in relation to orders of insects. The Kernel, the most active part of neem, can be used for this property in powder form or an extract in a solvent, which may be either of alcohol (most effective), chloroform, acetone and water. Oil extract in alcohol has been found to be effective against brown plant hopper and rice leaf folder. The kernel powder has been effectively used against store grain pests. The protection period extends up to a year. Inhibition of larval development and effect on oviposition and hatchability seem to be reinforcing the antifeedant activity of neem

The property of neem products to disrupt the growth of insects was first observed by W.W. Memillan and his colleagues in the year 1969. They found that the chloroform extract of neem effectively disrupted the growth of maize stem borer (Heliothes zea) and **Spodoptera frugiperda** (swarming catterpillar). Methanol extract affects the shield bug and *aqueous extract causes the death of* gypsy bug. The application of crude extract of neem produces such effects as delayed development of insects up to 2 months, causes production of larval-pupal intermediates and reduces the growth and development of insects at the time of ecdysis and eclosion. It also affects egg laying and post embryonic development of spider mite. Neem products are also reported to bring about morphogenetic changes and disturbance in endo crine system and protein metabolism of insect body.

Insecticide :

The neem also exhibits some toxic effects. About one-forth instability in lucern weevil has been found by application of water extract and neem leaves. Soil applicaltion of neem cake kills **Microtermes Sp.** coming in its contact and thus some *soil-borne insects can also be* controlled by neem cake. Mosquito larvae are instantaneously killed by neem oil ; the effectiveness, however, varies with concentration. The alcohol extract of neem kernel can be used as a good contact insecticide against mustard aphids.

However, the physiological and contact actions of neem on insects are difficult to be isolated and probably reinforce each other It is important to note that neem does not have phytotoxicity

Other Effects :

Besides, neem products have some other effects also. It affects taste organs and thus inhibits feeding. It acts as an olfactory repellent and *affects* oviposition The neem leaves possess substances which strongly attracts some insects. This property has been successfully utilised in attracting and killing the white gubs.

The neem products possess systemic action too. The active materials are translocated in plants through xylem and phloem, and can possibly be used against internally feedng (sucking and piercing types of) insects. Soil application of neem

and also seed soaking with neem products have been found to protect some crops from locust for a week to a month.

Neem products and their derivatives have proved useful not only in the control of insects but also in controlling nematodes. Application of these chemicals delays the incidence of diseases or reduces their intensity. According to plant protection scientists neem products can also be used to manage tungro virus and yellow dwarf for which, at present, there is no control. Thus, the neem products are likely to substitute toxic chemicals like Aldicarb which means plant protection without pollution hazard.

Neem cake supplies nutrients to plants and protects crops from termites. It is richer in nutrients than other cakes (content of neem cake being : nitrogen 5% phosphate 2% and potash 10%). It reduces the loss of nitrogen and enhances its use-efficiencey. Mixing neem cake (3%) with nitrogenous fertilizers suppresses the activity of Nitosomonas bacteria responsible for nitrification, i.e., conversion of other form to nitrate, thus reduces the leaching loss and enhances nitrogen use-efficiency of fertilizers.

Thus, in this age of pollution neem can be used as a wonderful natural pesticide which is capable of protecting plants without harming them and the ecosystem. □

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The wage situation in the country is still chaotic due to the absence of a national wage policy. There still exists large disparities in the wages in the different sectors of the economy. It deserves to be stressed that more technological changes will mean further difference in wages among the sectors. Therefore, this underlines the need to design an equalitarian national wage policy.

In the context of modern technology, an important area that needs to be attended to is continuous training and retraining of the workers. The involvement and active participation of trade unions in the design and preparation of the training courses may make these courses more realistic and effective in the overall interest of the industry. Research and development has been yet another important area of an industry that also needs to be attended to. It is observed that the total absence of managerial and technological innovation is mainly due to gross neglect of research and development. For this, there should be a periodical dialogue between the researchers and shop-floor workers about new techniques of production.

Our experience suggests that the rapid changes in technology put a greater mental as well as physical strain on engineers, management and workers alike. The traditional 8-hour shift pattern has, therefore, lost its relevance to a great extent. On the other side, the experience in the industrialised countries has proved beyond doubt the 6-hour and 4-hour shifts with results of getting greater productivity and economically improved utilisation of men and machinery.

Most important of all is that the Indian trade unions are confined to the organised sector only. The unorganised and rural sector which constitute about 90 per cent of the total work force do not come under the purview of the trade unions. Since the rural and unorganised sectors remain the most exploited and most neglected, it is the responsibility of trade unions to protect the interests of these sectors also. In fact, the trade unions can continue to neglect them only at their own peril. □

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The Fishery Cooperative Movement In Orissa

Dr. D. Panda

FISHING has been the occupation of an important section of people in Orissa from time immemorial forming an integral part of the heritage of fishermen community. This occupation, in general was considered low in society and as such it prevented the introduction of capital and organisation from more resourceful communities. As a result, the industry was developed solely by the traditional community of fishermen for centuries. Prior to Independence the industry hardly received any encouragement from the government towards its development.

A meaningful move for a modernised fishing industry was made with the start of planning era It has been estimated that even at present the fish production of the State both from inland and marine sectors is less than 40 per cent of the potential and the contribution of fishery to the State income is below 2 per cent Further it is interesting to note that the per capita consumption of fish in the State is about 2 kg. compared to 4 kg. in the country and 11 kg. as per minimum nutritional requirement according to recommendations of the National Commission on Agriculture.

One of the main objectives of fisheries development programme in the State is the improvement of socio-economic status of poor fishermen who have remained poverty striken for centuries, while the traders and middlemen flourished at their cost. Studies conducted on socio-economic life of fishermen revealed that the fishermen have low per capita income, mounting indebtedness, inadequate possession of fishing crafts and gears, poor social and educational standards. All these factors are responsible for their low economic conditions and their exploitation by middlemen. Hence, the primary fishermen cooperative societies (PFCS) are formed in the State with the following objectives in view :

(a) to help members in marketing their catch ;

(b) to make direct or subsidised purchases of fishing crafts and gears for supply to members either on sale or on hire ;

(c) to procure loans from available sources for the benefit of members ;

(d) to encourage the members to adopt modern methods and know-how for fishing ;

(e) to grant loans to members on security of movable and immovable properties and,

(f) to engage in all such activities necessary for improving the economic status of members and bringing coordination among them for common interest.

Fishermen in the State derive certain benefits by forming cooperative societies. They get preference in the matter of leasing fishery sairats (fishing grounds) over others. It may be pointed out that the earlier system of leasing fishery sairats through public auction mostly to finaciers from outside the State has been abandoned. The Govenment of Orissa declared that first preference should be given for settlement of sairats to the PFCS as per the recommendations of the District Fishery Officer. The whole of Chilka lake, as for example, is placed in the hands of cooperative societies.

The PFCS are also in the receipt of various kinds of financial assistance from Government in the shape of share capital, subsidy and loans in addition to assistance extended to them by the commercial banks, cooperative banks and national Cooperative Development Corporation (NCDC).

The Scenario

The fishery cooperatives in the State are organised under a two tier structure consisting of Central Fishermen Cooperative Marketing Society (CFCMS) the apex society and Primary Fishermen Cooperative Societies—the member societies Besides, there are 4 district level societies Although the CFCMS was planned to control and direct all the PFCS, so far its activities are restricted to societies located at Chilka area only and as such there is no *de facto* apex society in the State. Hence the Government of Orissa now proposes to institute "Orissa State Fishermen's Cooperative Federation" as the apex

society. By and large, all the PFCS excepting Chilka area, are being controlled by the Deputy Registrar stationed at Directorate of Fishery, Cuttack.

Of the 185 PFCS transferred to the Directorate, 85 were active and the remaining 100 were in moribound state. All these societies were reconstituted and registered afresh. New PFCS in marine, inland and Chilka area were started and their membership increased. The number of PFCS and their membership as stood in different years are reflected in Table 1.

Table-1 depicts that the number of PFCS has increased from 185 in 74-75 to 774 in 91-92 recording an increase of 318 per cent during a span of 18 years. Similarly their membership also has gone up from 21,269 to 77,091 showing an increase of 262 per cent during the same period. This leads us to observe that the fishermen have interest to come under cooperative fold. However it is worth mentioning that the percentage of cooperative members to active fishermen population is not going through any change. During 80-81 the percentage of cooperative membership to active fishermen (1,01,305) was 42.12 per cent while in 91-92 it came down to exactly 42 per cent (1,83,538) Further the average number of members per society is reduced from 115 in 74-75 to 100 in 91-92.

Operation

Despite the privileges granted to the PFCS the social objectives for which they were formed remains unfulfilled. From the records it appears that a number of societies are liquidated, several societies are in moribound state and many others are about to attain such stages. The position of working, moribound and liquidated PFCS is portrayed in the Table 2.

TABLE-2

Number of working, moribound and Liquidated PFCS in Orissa

Year	No. of Societies			
	Working	Moribound	Liquidated	Total
upto 87	429 (67.03)	128 (20.00)	83 (12.94)	648 (100)
upto 88	447 (67.94)	124 (18.84)	87 (13.22)	658 (100)
upto 89	473 (68.95)	124 (18.07)	89 (12.97)	686 (100)
upto 90	481 (68.91)	128 (18.33)	89 (12.75)	698 (100)
upto 91	494 (65.60)	108 (14.34)	151 (20.05)	753 (100)
upto 92	513 (66.27)	97 (12.53)	164 (21.18)	774 (100)

Note : Figures in parentheses denote percentage

Source : Directorate of Fisheries, Government of Orissa, Cuttack.

As shown in Table-2, the number of working PFCS has gone up from 429 in 87 to 513 in 92, while their percentage to total more or less remains same. The number of liquidated PFCS increased from 83 in 87 to 164 in 92 recording an increase of 47 per cent. As a percentage to total it has gone up from 12.94 to 21.18 during the period under review. On the other hand, the number of moribound PFCS had decreased from 128 in 87 to 97 in 92. Since the decrease is regular, there is hope for functional improvement in future.

Conclusion

The foregoing discussions reveal that the fishery cooperative movement in the State has gathered momentum. They continue to enjoy Government patronage irrespective of their performance. However, the structural set up of the PFCS requires review by the authorities to tone up their functioning and to prevent them from being liquidated or becoming moribound. The average number of members per PFCS not being encouraging, efforts need to be initiated to bring more and more active fishermen under the cooperative fold. The present state of affairs may be ascribed to ineffective and poor management of socieites, lack of timely and proper supervision and control by the government agencies and political interference. The whole gamut of exercises, therefore, need to be adequately insulated against all such deficiencies and all concerend agencies and authorities are expected to play a more meaningful role with some amount of commitment so as to make them viable and effective social organisations. □

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TABLE-1

Fishery Cooperatives in Orissa—Number and Membership

Year	*No. of Societies*	*No. of members*	*Average Members per society*
upto 74-75	185	21,269	115
upto 80-81	482	42,671	89
upto 86-87	640	59,279	93
upto 91-92	774	77,091	100

Source : Directorate of Fisheries, Government of Orissa, Cuttack.

Rice After Harvest

G. Ravindran Nair*

A good harvest is not an end to the problems of the Indian farmer. Once harvest is over, a new set of problems face him Only when the fruits of his long labour reach him from the market, he can heave a sigh of relief. Harvesting is followed by cleaning, drying, storage, milling and distribution to the market. Studies have shown that 13 to 34 per cent of the crop is lost during harvest and post harvest operations : during harvesting and threshing 5 to 15 per cent ; in cleaning and drying, 2 to 3 per cent ; in storage, 2 to 6 per cent ; in processing (parboiling and milling), 3 to 7 per cent ; and during handling and transport, 1 to 3 per cent.

The maturity of the grain is determined on the basis of its moisture content. The optimum moisture content of the rice grain at harvest time is 21 to 24 per cent which is generally flowering If the rice crop is allowed to stand in the field after it reaches maturity, large losses occur in both the field and outside, the moisture content reducing to 15 per cent resulting in a loss as high as 20 per cent of the grain. And there are birds and rodents who are only eager to take their share of the ripened grain.

A variety of mechanical cleaners and threshers are available now. They eliminate the dredgery of hand threshing and cleaning by traditional methods.

Paddy should be dried till the moisture content is reduced to at least 14 per cent as soon as possible to prevent deterioration. Many farmers still prefer the inexpensive method of drying it in the sun. But some modern rice varieties which ripen in a short span of time have made this drying process more complicated. They reach maturity during the rainy season when it is difficult to get enough sun. Moreover, a number of modern varieties do not have seed dormancy and sprout soon after harvest if allowed to remain wet. To overcome these problems many farmers rely on mechanical dryers.

The storage is other problem. It is the largest single investment in the post harvest technology. Losses in storage range from 2 to 6 per cent They are chiefly because of insects and rodents and of careless handling, including improper care of sacks. All these apart, fungi and bacteria may reduce quality if the relative humidity of the air in the storage space remains too high (above 70 per cent), or if rain water is allowed to enter the storage building

As regards rice processsing, the parboiling of rice has been practised in our country. It consists of soaking the paddy, steaming it, and finally drying before milling. During soaking and steaming the starch swells and becomes gelatinised. When the grain rises, the endosperm hardens and becomes resistant to breakage during milling Parboiled rice has a different taste and texture than rice that has not been parboiled.

Parboiled rice has several advantages. First. Dehulling is easier, because the husk is split during parboiling. Second, the extra strength acquired by the kernel during parboiling reduces the number of broken grains during milling. Third, as it is harder it tends to resist insect attack during storage. Fourth, the loss of solids into gruel during cooking is less in parboiled than in raw rice. Fifth, it withstands overcooking without becoming pasty. Sixth, the bran from parboiled rice contains 25 to 30 per cent oil, while bran from raw rice contains only 15 to 20 per cent.

Milled rice, the final product of rice processing, represents only 65 to 70 per cent of the original paddy. The removed products, hull ad bran, have several uses. The husk or hull of the rice grain which represents 22 per cent of the weight of the paddy, is high in silica and lignin and is used as fuel for parboiling and drying. The white ash produced from burning rice hulls is sold as a cleaning compound for floors and for absorbing grease. It has also limited use as fillers, additives, and carriers in the chemical industry. Rice hulls can be used as an aggregate for concrete blocks, as a base for pressed board products, as cattle feed and litter, for the manufacture of furfural (a chemical product used in the dye and plastic industries), and for insulation. In some of the developed countries, hulls are compressed into briquets and sold as firewood substitute.

There are two principal uses of rice bran : as a feedstuff for cattle, poultry, and swine, and as a source of rice bran oil. About 8 per cent of the weight of the paddy is bran. Compared with rice endosperm, it is rich in vitamins, minerals and protein. Thus, every part of the paddy can be utilised fully. □

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Review Article

ECONOMIC REFORMS

The book attempts to review the Indian experience in controlling the economy and the recent changes by way of eocnomic reforms in the country. It is divided into four chapters. The first chapter mainly deals with the economic reforms in the Communist or erstwhile Communist countries such as China, the former USSR and the countries of Eastern Europe. The second chapter deals with the winds of change blowing across the non-communist world in terms of the increasing degree of globalisation of the national economies and the various developments connected therewith, such as mergers, regional economic integration etc. The remaining two chapters deal with the Control Regime and Economic Reforms in India.

The background to the economic reforms in the Communist world and the content and impact of the reforms have been very well brought out in the first chapter. There are extensive extracts from authoritative reports and documents about the lines along which the reform changes were brought about or were considered necessary. The treatment is fairly detailed and gives a good idea of the change. Some of the observations from these extracts are very revealing. One such : 'From each according to his ability to each according to his needs' being replaced in the new dispensation by each according to his ability to each according to his work'. The changeover to a market oriented or friendly economy is not very smooth and problems of transition have to be contended with. The chapter does not ignore this aspect and these problems have also been briefly highlighted.

The increasing trend towards the outgrowth of the national economies in terms of regional integration, mergers, strategic alliances in the non-communist world is the subject dealt with in the second chapter of the book. The new emerging features of doing business on the larger than the national scale as part of the globalisation of the national economies have been brought out in this chapter. Those who are keen to understand the benefits that can flow from the globalisation trends and the factors which underlie such trends will find this chapter useful reading.

The two remaining chapters deal with the Control Regime and the Economic Reforms in our country. Together these two chapters deal with the changes and reforms in the realm of the Industrial policy, MRTP control over industries, regulation of foreign investments, collaboration and technology, trade regime etc. Both the chapters contain useful sections at the end evaluating the policy changes. The concluding theme of the book, so far as the economic reforms in our country are concerned, is that further improvements would be necessary along certain lines such as the delicensing of a further group of industries, overcoming with determination the resistance of the entrenched bureacracy and the opposition of the political and other groups with vested interests in the retention of the older economic regime. The author points out that one of the deficiencies of the economic reform effort is that it does not contain an exit policy. However, he has recognised the need to protect the interests of the workers who may be affected by the implementation of the reform proposals and has suggested that the problem should be faced and solved satisfactorily by retraining, redeployment etc. The author also cautions against an optimistic expectation of the flow of foreign investment to India what with the demand for the same from other countries with far more conducive economic and procedural environment than in India. The book concludes by pointing out that the domestic industry has now been given a considerable leeway to prove its mettle. This dynamism coupled with an enhanced external collaboration and competition should be expected to provide a considerable momentum for development. At the same time the Grovernment should be expected to strive to remove the remaining lacunae and hassels and to implement the reforms in letter and spirit.

Two useful notes on devaluation and privatisation have been appended to the book. Both the notes have been well written clarifying the concepts and explaining the justification for and the implications of these measures.

The book is well written in style and substance and appears to have been got prepared and printed with great expedition. In tune with the market-friendly spirit of the economic reform approach, the book, quiet thoughtfully it seems, is dedicated to 'The Invisible Hand'. It will be a very useful reading for all those interested in understanding the economic reform effort in our country and in its success. The get-up and the printing of the book is also neat and impressive. In sum, the book is a very good effort on a subject of great topical importance for India. ☐

T.V. Gopalaswami

Economic Reforms in India and Abroad : Francis Cherunilam, Himalaya Publishing House, 1992 (104 Pages) Rs. 150

Book Review

Women Dimension On Television : By Ila Joshi Concept Publishing Company, New Delhi ; pp. 162 ; Price Rs. 140.

This well researched study mainly focusses on three aspects of women's involvement in the visual electronic medium in its present stage of development in this country. These are the perspectives of policy, personnel and programmes of Doordarshan.

Television in its scope and content has always been a subject of debate in India where its full potential is yet to be harnessed. Dr Ila Joshi's study is, therefore, highly relevant and is to be welcomed. The book provides material for discussion on this facet in Doordarshan telecasts. The research-oriented study undertaken by the author is also to be viewed in the context of a growing concern among different sections of our society over the total impact of what is projected on our TV screen.

The study under review is an attempt to ascertain the validity of the charge often levelled that this sound and visual medium has not yet evolved a balanced perspective on the role of women in its telecasts. The problem is investigated by Dr. Joshi from the three perspectives she has chosen. These aspects cover almost the entire range of the Doordarshan output.

The author has the necessary credentials and the background for the task she has undertaken. Dr Joshi works at the Educational Media Research Centre of Gujarat University. As Research Officer, Reader and Coordinator at the Centre for Development Communication she has had opportunities for a first hand view of the subject in its multi-faceted impact.

The basic question of the image of women in the media has, indeed, acquired a new scale and significance in discussions across the country. But the study by Dr. Joshi is restricted to a limited format. It is confined to three centres : Delhi Doordarshan Kendra, Ahmedabad Doordarshan Kendra and the Development Education Communication Unit/ISRO (Indian Space Research Organisation) which is devoted to rural development and education.

The starting point of inquiry is the perception of women's groups that the style and bias reflected in commercial cinema is invading television. Answers to questions directed to individuals are sought through the content analysis of programmes telecast from the three centres over an eight-week period. This choice has necessarily imposed limitations on the conclusions drawn from the inquiry.

As Mr Harish Khanna points out in his Foreword to the book : the choice of Ahmedabad has imposed some limitations on the analytical design. Apart from the development oriented, target-specific broadcasting network at ISRO, the Ahmedabad station of Doordarshan has not been originating many programmes other than news and special features. This limitation was sought to be overcome by extending the inquiry to the personnel at the Delhi DD Kendra. But the limitation, nevertheless, had its crippling effect on conclusions drawn from the answers furnished.

Dr. Joshi has done well to draw the attention of readers to some of the harmful features of commercial advertising in their portrayal of women. She rightly points out that "the unrealistic and unfair portrayal of women by advertisers did great harm since the commercials were repeated over and over again." The revised code on the subject of advertising, according to her, is "too feeble to bring about any change."

The author's basic proposition is that overall, a low proportion of women employed in telecasting might be a factor responsible for the inadequate representation of the true and proper image of Indian women. On this assessment again, Mr. Khanna, who was for some time a top DD official, points out that the percentage of women employees in the organisation is not drastically lower than the figure in other countries with which comparisons have been made. The reason, as he observe, is elsewhere.

The chief value of the study lies in its data collection and interpretation. From that emerges the conclusion that Indian televcision is in the process of a flux. It indicates the transition from a traditional value-system to a state reflecting the fast changing ethos of our developing society. ☐

M K Dharma Raja

Irrigation in India ; Alternative Perspectives by Krishna Bharadwaj (Research in Economics, Second Survey, Monograph No. 3); Published by Indian Council of Social Science Research (ICSSR), 35, Ferozeshah Road, New Delhi 110001, 1990; Pp. VIII + 73.

The purpose of the monograph in question is two fold : (i) to survey briefly significant contribution to research in the area of irrigation in India identifying salient features and the underlying perspectives of analysis so as to assess, in broad terms, the state of research in the field ; and (ii) to indicate research areas and themes which demand indepth investigations and which open out into promising lines of further enquiry. Late Prof Bharadwaj also suggests an alternative perspective on irrigation studies, which in her view, afford a more comprehensive perception of issues connected with the creation, maintenance and utilisation of irrigation assets

The monograph starts with a brief review of the development of irrigation in India, focussing on the issues that have been highlighted in the concerned historical studies In section 2, attention has been paid to the economic/econometric research that has held a prominent place in the field of study, underlining their methodological basis and analystical perspective. In section 3, issues related to the creation, maintenance and utilisation of alternative modes of irrigation from the comprehensive perspective of their technological supply aspects as well as the aspect of demand or 'utilisation' by users, differentiated in terms of their socio-economic status have been analysed. In the concluding section the fruitful areas of inquiry and unresolved issues that demand probing attention are indicated.

The monograph has attempted to present, in board terms, some of the important issues that have emerged in the analysis of irrigation in India and has outlined the state of research and information as well as its underlying theoretical perspective. Dominant in the existing approach is the technological perspective which treats irrigation as a 'technological' input in production and deals extensively and indepth with the technological, financial and economic problems connected with the supply of irrigation. The common refrain in professor Bharadwaj's discussion has been the view point that technological considerations of costs and benefits need to be placed within the context of socio-economic relations and conditions of production and exchange of the user community. Issues such as choice between alteranative modes of irrigation should keep in view the fact that it is not technological feasibility alone that matters but that the creation, maintenance and utilisation of the irrigation assets is dependent upon these production and exchange relations prevalent in the user community The choice may be thus not merely between alternative technical options but between the totalities of different systems of irrigation supply and use. In this context, included in the system is the organisation for maintenance and water distribution. Further, the effective utilisation of irrigation depends also upon the effective organisation of production, with which the former needs ideally to be coordinated.

I view of above, Prof. Bharadwaj has suggested that more research needs to be done on the interaction between the irrigation technology and the social relations in a region i.e., on the impact that irrigation has (or may have) on the conditions of production and accumulation of different categories of users and the implications this has on the dynamics of development of the region as a whole. Research needs also to be done to investigate and evolve methods of co-operative management of irrigation—whether at the level of creation of irrigation sources or maintenace or allocation of water to different users suitable to the social needs of the community It is the usefulness of irrigation, as a collective good, as a natural resource which is critically required in production and in order to stimulate productive improvements and which has far reaching and significant "externalities" that it demands more comprehensive analytical approach which, Prof. Bharadwaj calls, in board terms, the "production relations approach".

The brilliantly written book is a very welcome addition to the alternative perspectives on irrigation in India. It combines scholarship with perception and deligence. The reviewer has learnt a great deal from reading the book and greatly admires this thought provoking book that has set a high standard for research in the country. There are many positive things that can be said about it. No serious student or teacher of Economics concerned with irrigation in India can afford to over-look this book that has a mine of insight and in this way it is an important contribution to the various aspects of irrigation in India. Prof. Bharadwaj's study is a model of clarity in exposition and fairmindedness in argument. ☐

Sharawan Kumar Singh

Essay Competition

To commemorate the Centenary of Swami Vivekananda's Bharat Parikrama and his address at the Parliament of Religion at Chicago, Yojana (English) is organising an essay competition open to its subscribers only. The theme of the essay is : Swamiji's Bharat Parikrama, the Chicago address and the message of Unity and Amity. The essay should be of about 1500-1600 words. The participants should mention their subscription number prominently. They should write on the top of the envelop "Essay Competition". There will be three prizes viz, First Prize : Rs. 1000/-, Second Prize : Rs. 800/- and Third Prize : Rs. 600/-. There will also be two consolation prizes of Rs. 400/- each. The prize winning essays will be published in September 1993 issue.

The last date for receipt of the entries is 31.7.1993.

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Individual Investment Portfolio Management

Dr. A.K. Sarkar

Investible surplus of investors are limited, whereas scrips for investment in the market are unlimited. Hence the need for caution. The author, a chartered financial analyst, points out some common errors in the game and suggests some tips to safeguard the interest of the investors.

INDIAN capital market provides enormous opportunities for investors to invest their investible surpluses. Besides scrips in the secondary market, the primary market is flooded with scrips of new entrants. The growth of Indian capital market can be assessed with the following figures. The total funds raised by companies during the period 1990-91 was worth Rs. 4200 crore from the stock makets as compared to Rs. 100 crore during the seventies. It is expected that the new issue market will grow upto Rs. 10,000 crore during the current year. The Institutional Finance to industry has also increased from Rs. 2525 crore during 1980-81 to Rs. 19,917 crore during 1990-91. Also, the number of listed companies on various stock exchanges which was about 2500 during 1980-81 increased to 6500 during 1990-91. The market capitalisation of listed companies which was Rs. 5843 crore during 1980 increased to Rs. 55,409 crore during 1990 and presently it has reached to a staggering figure of Rs. 2,50,000 crore. The daily turnover of various stock exchanges was only Rs. 15—20 crore during 1980 which has now gone upto Rs. 300 crore during 1990-91. Further, broadening of Indian capital market is expected with the listing of securities of public sector undertakings. If one considers the investing population it has reached a two crore number which was only 50 lakh a decade ago.

It is evident that the Indian investors have immense opportunities to invest; they may either approach primary market or the secondary market or both the markets simultaneously for making their investments. Before deciding about individual investment portfolio, every investor is confronted with four important factors; namely, safety, return or yield on investment, liquidity and maturity period. Study shows that safety is the prime consideration in choosing an investment. Next emphasis is on return on yield on investment and the least weightage is given to liquidity. Some investors also consider maturity period while making investments. Let us consider these factors:

Safety :

Perhaps, the most important objetive before an investor is the safety of his innvestment. If there is a considerable fall in the value of his investment, he might be ruined. So, every investor gives greater emphasis for safety of his investment while selecting the investment avenues.

However, it must be kept in mind that greater profit may be expected when risks taken. In case of low risk, the expectation of income is low and safety of investment decision is higher.

Return or Yield :

The second important consideration for an investor is the expected return or yield on investment. It is important to point out that yield is directly related to risk. Before deciding about the return on investment, one must consider: the

risk involved in the invesstment, inflation rate, appreciation in investment and tax advantages.

Liquidity :

Liquidity is important because in case of emergency, if ivestment can not be converted into cash immediately, the investor has to borrow money at comparatively higher rate of interest. Investment in real estate is fairly illiquid. Deposits in bank and investment in listed securities are fairly liquid.

Maturity Period :

As per the planning of the investors, investments are made for very short period, short period and long period. The maturity period of investment may range from 15 days to 3 to 5 years, and in some cases even more. The selection of the maturity period of the investor will depend upon his investment objectives and his own requirements of funds.

After considering all these factors, an investor is expected to form his investment portfolio. Investment avenues are unlimited, but investible surplus is limited. So, the investor has to exercise his own prudence and discretion while selecting scrips for its investment portfolio

However, it is worth mentioning that investors commit some common mistakes while forming their investment portfolios. This paper is an attempt to point out common mistakes commited by investors and to explore certain important factors that must be considered while forming an investment portfolio.

Mistakes

Usually, the investors commit the following mistakes while selecting scrips for thier investment portolios :

1. Failure to Define Investment Objectives Clearly :

Often investors fail to form a clear-cut picture about their investment objectives in terms of amount to risk and expected yield. It is important to assess their willingness to bear the amount of risk. Unless an investor has clear perception about his risk attitude or disposition, it is most likely that a mismatching between investment objectives and selection of scrips will take place. If an investor is willing to earn handsome amount of return on his investment, he will have to take comparatively greater amount of risk and acordingly he will be required to select growth oriented scrips. But, generally investors do not think in the diretion of spelling out clearly the risk attitude or disposition and have no planning about the efforts needed to manage their portfolios, and also about the rational behind their expectation about the yields on investment.

2. Mismatch between Risk and Return :

An investor's return is based on the amount of risk taken and the efforts put-in in the management of investment portfolio The investors who are taking moderate amount of risk are rewarded more than the investors taking low risk, assuming other thing being equal Generally, investors don't like to take risk, where as, they expect to earn high rate of return. Their expectation about return is usually not probably matched with the amount of risk taken.

Similarly, if an investor is putting minimal effort in his portfolio management and following a passive approach, then, it is unlikely that he will earn more than the one who is following an active approach and putting substantial effort in his portfolio management.

3. Inefficient Investment Decision Making :

It is common practice among investors to base their investment decisions without proper and effective analysis of the scrip. Usually, investors' decisions are based on cursory analysis of the stock or the issuing company, sudden impulse, mood prevailing in the market, newspaper and magazine information and advice of the friends etc.

4. Superfluous Diversification :

Normally, the benefit of diversification can be achieved by investing in 10 to 15 different assets. But, usually, investors feel psychologically more secure by having a lot of shares in their investment portfolios. It is observed that investors generally hold much more than 15 shares in their investment portfolios. Another reason for holding such a large number of shares may be the allotment of small quantity of shares by the companies. Superfluous diversification results in higher research cost, high transaction cost, use of out-of-date securities information and purchase of lackluster performers.

5. Inappropriate Timing :

Scrip price tend to fluctuate - and sometimes violently. These fluctuations lure some investors to trade frequently in expectation of making profits out of short term fluctuation. They are tempted to out guess the market. However, the Wall Street Maxim must b remembered, which says, "Bulls can make money, bears can make money but hogs can not make money". Unless an investor has the expertise and ability to judge the market fluctuations—which is usually very rarely available, a strategy of frequent trading will not produce the desired result after considering transaction cost. Studies of the performance of Mutual Funds following active trading in

expectation to maximise investors' income reveal that they have been unable to earn significantly higher rate of return that hs been earned with a naive buy—and-hold strategy.

6. Inadequate Portfolio Revision :

Variety of changes in the stock market results in change in the risk and return statistics of securities, causing portfolio revision a necessity. But, usually, investors do not bother to review or revise their portfolios. The reason may be non-availability of time, inadequate revision benefit and the transaction cost involved.

Stock market is very dynamic where changes occur very rapidly. It becomes imperative to revise portolio in order to adjust and up-date the portfolio according to new/changed circumstances.

Portfolio Management

The points cited above are some of the examples where investors are at defualt while making investment decisions Now, in the following discussion some importants tips have been provided that can be helpful in managing investment portfolio effectively

An investor should spell out clearly its investment objectives so that securities may be selected acordingly. The objectives must be defined in terms of disposition towards risk and the expected rate of return. For this purpose, investors are expected to define the amount of risk that they are willing to take, the level of efforts they are expected to put-in in the management of investment portfolio and the reasonable expected rate of return. Once the investors succeed in articulating their financial temperament, investment objectives and investment approach, the possiblity of mismatch between investment objective and selection of securities will be minimised, and the investment decision will prove to be up-to-the mark. All this will require that investors should have clear perception of investment objectives in their mind.

Investment decisions should not be based on casual tips or should not be taken without considering the important factors that determine the worth of the scrip. The decision to include a scrip in the portfolio must be based on critical analysis of the fundamental and technical factors of the company. In this context, the following guidelines of Burton G. Malkil are worth considering :

(i) The stock purchase must be confined to those companies which seem to sustain above-average growth.

(ii) Pay for a stock which is reasonable and justified by a firm foundation of value and never more than it.

(iii) The stock of those companies should be purchased whose stories of anticipated growth are most promising.

In case of selection of scrip from an initial offer, it is important to go through the terms of allotment of the shares—the portion of total issue offered to the public and percentage reserved for preferential offer These informations are available in application form.

Care must be exercised with respect to convertible debentures or partly convertible debentures' conversion price at which convertible portion of debentures will be converted into equity shares for the public and the promoters etc. This will help investers to assess whether there is unreasonable difference between the two rates, and accordingly, investors can take their investment decisions.

One other point must be considered carefully is the amount reserved for prefential allotment to UTI, Mutual Funds and Financial Institutions, while selecting a new public issue. If, financial institutions have agreed to subscribe to new public issue, it enhances the credibility of the scrip and investment in such scrips will prove to be a right decision.

Similarly, if there is a substantial foreign equity participation in a company under liberalised investment policy, it is also a yardstick of credibility. Scrips of such companies deserve to be included in an investor's portfolio.

Every investment decision should be followed by the careful analysis of the track record of the company, when the issue is by an existing company. However, in case of an issue of new company, an analysis of the track record of the group may be undertaken. It is a common practice followed by companies to declare dividend before entering into the capital market. So, it is important to consider the net profit, earning per share, dividend pay-out ratio and rate of dividend of at least previous three years. Further, analyse the short-term and long-term financial position of the company with the help of ratio analysis; calculating ratios, such as, current ratio, liquid ratio, solvency ratio, proprietory ratio, debt equity ratio etc.

While comparing share prices of a company with the price movement of their competitors, it is advisable to compare not merely the share prices but also the turnover, installed capacity, project cost, product range and total innvestment etc.

While purchasing a scrip of a company, it is important to know who are the persons at the management of the company. The persons at the helm

of the organisation play a vital role in the development of its corporate image and its financial performance. If the well known and successful managers or group with excellent track record and who have established their goodwill or credibility as a successful management persons or group are included in the management of a company, the investment in such a company will prove to be fruitful. However, in case of new issues, the track record of the group in other business ventures and activities must be considered. Care should be excercised while establishing the identity of the management persons. Because, it is possible that the compnay my include such persons in its management having identical names of reputed management persons, in order to lure new investors.

Although it is somewhat risky in investing in companies which are venturing in non-traditional fields, yet, it will be profitable when we consider the investment of the whole portfolio. This is because of the fact that some non-traditional activities have also shown tremendous success.

The companies set-up by technocrats have also proved successful So, it is worth considering to include scrips of such companies which are managed by technocrats in the portfolio of an investor. Expectation of higher income increases with the investment decision going beyond traditional field but the risk also increases simultaneouly.

Simple rule of thumb of investment decision in "not putting all the eggs in one basket" or "spreading the risk". As the number of securities increases to 10 to 15 in a diversified portfolio, the portfolio's risk will reduce towards systematic level of risk in the market. But this must be kept in mind that spreading portfolio's assets over twice or thrice as many stock can not be expected to further reduce risk. So, an investor should try to manage the number of securities in its innvestment portfolio to about 15. The investible surplus can be divided into small lots to be invested in several securities in order to divide the risk. As a matter of fact applications for small, number of shares have better chances of allotment. Moreover, monitoring of the performance of different securities is easily possible when the number of securities in one investment portfolio is about 15.

Moving a step further in the process of diversification, better results can be attained by following markowitz Diversification Markowitz diversification reduces portfolio risk below systematic level. In this process, portfolio consists of securities which are less than perfectly positively correlated, that reduces the portfolio risk below systematic level without sacrificing any portfolio returns. Substantial risk reduction can be achieved by diversifying across uncorrelated assets. Empirical studies have shown that common stock price indices, bond price indices and commodity price indices all tend to be uncorrelated. So, in order to achieve better risk reduction an investor should try to find securities whose rate of return have low enough correlations. This requires data bank of financial statistics for many securities and a computer.

It is certainly better to select securities from different and unrelated industries than to select all the securities in a portfolio from one industry. But, it is important to mention that diversifying across industries is not much better than simply selecting securities randomly. So, an investor can achieve the benefit of simple diversification, simply by selecting securities for his portfolio randomly.

Besides, it is important to mention here that the track record of the management in terms of project implementation and growth in the past is the signle major factor which should influence the investment. Project implementation in time comprehensively reflect the management abilities. So, it is important to analyse carefully the track record of expansion, diversifiction and modernisation projects undertaken by the management.

Further, management's effort to upgrade the manufacturing technology and reduce expenditures on energy and cost saving projects are positive signs towards commitment to manufacture qualitative and competitive products.

The factors stated above are of immense importance and worth considering while forming an investment portfolio. An investor should not be lured by the short-term margins and rapid appreciations. While forming an investment portfolio, a detailed analysis of the company should be made—about its products manufactured, technology involved, project performence and the management etc. Industry analysis should also be made because investment in growth oriented industries is beneficial. In a nut shell, fundamental and technical factors must be given due consideration. The effective portfolio management is the one where investments are made in correct securities at correct time with adequate diversification and with provision to review and revise the portfolio from time to time. □

The author is Head, Deptt. of Commerce, HNB Garhwal University.

Effectiveness Of Irrigation Projects In Kerala

Jose Jacob

ECONOMIC activity of a State may broadly be divided into two categories. Those aiming at direct financial return within a stipulated time span and those that aim at indirect economic return, that too extended over longer period of time The specific reason why direct economic return is not purported from the investments in the second category is that they are supposed to be contributory for the survival and development of the economy by its very nature and linkage effects

Investments for the development of irrigation facilities come under the second category. In Kerala, due to the specific climatic conditions of the State, development of irrigation facilities have been a necessity for increasing agricultural production and productivity. Hence a larger chunk of resources of the State has been earmarked for development of irrigation facilities.

The irrigation potential of the State is estimated to be 16 lakh hectares (net) or 25 lakh hectares (gross). Out of which the potential of major and medium irrigation schemes has been estimated to be six lakh hectares (net) i.e. 37·5 per cent or 14 lakh hectares (gross). The rest 10 lakh hectares (net) i.e., 62·5 per cent or 11 lakh hectares (gross) is estimated to be brought under irrigation through minor schemes. Despite this, the largest share of investment i.e., Rs 729·1 crore out of Rs. 889·35 crore or 81·99 per cent of the total capital investment in the irrigation sector at the end of March 1990 has been concentrated in major and medium scale irrigation schemes (MMIS); the share to minor irrigation schemes being only 18·01 per cent.

The effectiveness of the irrigation projects has to be determined on the basis of area irrigated and their contribution to agricultural production and productivity. The area irrigated with the help of the large scale projects in Kerala as per the details available in 1990 was 1·84 lakh hectares. The average amount of capital investment required for extending irrigation projects in 1989/90 was Rs. 39,625 in historical prices. But as the value of money changes to get a realistic figure in terms of current year's price level, the amount spent in different years has to be added up with the interests of it.

Several reasons are advanced for the high cost of irrigation through MMIS in Kerala Among them, the undulting topographical specifications, unscientific project preparation, the general state of distance between reservoirs and irrigated area seem to be prominent.

Focus On Paddy

Although it was proved in the context of Kerala that extension of irrigation facilities to crops other than paddy has been more productive and economic, almost all the major and medium irrigation schemes in Kerala are designed to benefit paddy lands. As per the latest available detials, in 1986-87, of the gross area of irrigated agricultural land of 4,25,588 hectares, 2,98,440 hectares i.e., 70·12 per cent of it is paddy fields. But, Kerala is yet to achieve increase in paddy production.

As the irrigation schemes in Kerala are mainly focused on paddy cultivation, the extent of area under paddy fields irrigated determine the effectiveness of these projects. The actual area under summer rice, as per the latest available estimates in 1989-90 was just 39,718 hectares which is 25·5 per cent of total area under paddy cultivation. Out of the total area under paddy cultivation during summer, about 74 per cent i.e., 29,391 hectares had been irrigated (State Planning Board (SPB), 1990). Even that is not fully served by reservoirs because, on an average, out of the total irrigated area 40·6 per cent is irrigated by means of minor irrigation schemes. On the basis of these statistics, it may be seen that summer crops irrigated with the help of major and medium schemes in Kerala is about 17,458.3 hectares which is only 11·2 per cent of the total area under paddy in the State.

The effectiveness of irrigation schemes in Kerala has to be determined on the basis of the extent and quantity of water supplied for summer crops, which alone offers the condition required for bringing out increase in agricultural production both in terms of yield and area.

The cost effectiveness of extension of irrigation has to be appraised on the basis of the increase in the productivity of paddy in the State. But the production details of paddy for about the last three decades, betweeen 1959-60 and 1986-87, shows that during this period laudable strides either in terms of quantity of production or in terms of productivity had not been made in Kerala. As far as extent of land under paddy cultivation is concerned, in truth it has been getting dwindled year after year since 1969-70. Substitution of paddy fields for commercial crops, construction of houses and other buildings, increasing cost of paddy cultivation, low relative profitability and the farmer's most important complaint of undependable and erratic supply of water appear to have contributed for the shrinkage of the area of paddy land in the State.

In Palghat, the district where five out of the ten completed major and medium irrigation schemes are located, the extent of land under paddy cultivation was 1,87,087 hectares in 1986-87 which as 82·7 of the total area under paddy cultivation in 1969-70. In Trichur and Trivandrum districts which have the highest share of irrigated area under paddy next only to Palghat district in the State, the extent of land under paddy cultivation during the same period had come down by 10·6 per cent points and 30·4 per cent points respectively. In the latest year for which data were available, in 1989-90, the extent of area under paddy in Kerala again had come down to 5,83,389 hectares which was just 66·7 per cent of the same in 1969-70. It may also, at this juncture, be pointed out that in the 1980s, between 1980-81 and 1986-87, the increase in irrigation facilities for area under paddy in the State was hardly six per cent, in spite of the substantial expenditure in this direction.

As far as production of paddy in the Sate is concerned, in 1959-60, at a time when the State had only two completed large dams, the amount of production was 10,37,989 tonnes whereas in 1986 after the commissioning of another eight large scale irrigation schemes and partial commissioning of seven major and medium irrigation schemes, the total production was 11,33,786 tonnes, an increase of 9·2 per cent only. In 1989-90 the total production of paddy in the State was 11,41,231 tonnes which was just 9·9 per cent more than in 1959-60. It may be worth mentioning that the total investment in the irrigation sector by the end of 1959-60 was Rs. 16·29 crore and in 1989-90 it was 889·35 crore.

In the three decades from 1959-60, of course, on an average there was increase in the mean yield of paddy in the State. The yield of irrigated area under paddy cultivation was estimated to be nearly 20 per cent higher for Virippu and 10 per cent for Mundakan compared to unirrigated area under paddy. (GOK, DES, 1988). But for this increase in the productivity of paddy, in addition to the extension of irrigation facilities, use of many other factors such as high yielding variety seeds, fertilizers and manures in increasing quantums, improved equipment and machinery, pesticides, insecticides etc., have also contributed substantially.

On extension of irrigation services the yield of seasonal and annual crops such as tapioca, banana, ginger, turmeric, chillies, vegetables, and perennial crops viz., coconut, arecanut, rubber, coco etc., have been found to be making significant increase. The proportion of irrigation facilities extended to extra paddy crops is hardly 30 per cent in Kerala. This indicates that the efficiency of use of water and returns from irrigation can be substantially enhanced only through the development of optimum cropping pattern and adoption of suitable techniques of irrigation with respect to the area and type of crops.

Table-1
Gross annual revenue from Selected Crops in Kerala (1985-86)

Name of Crop	Yield/ha (Kgs)	Yearly average farm price (Qtl)	Gross revenue/ha (Rs.)
Paddy*	1729	240·99	4166·7
Coconut	4792@	146·91'	7039·9
Tapioca	16149	89·19	14403·3
Banana	6813	63·00'	23607·0
Pepper	272	4331·66	11782·1
Ginger	2837	1121 49	31816·6
Sugarcane	6584	246·58	1623·5
Arecanut	NA	11·19'	NA

Source : Statistics for Planning, DES, GOK, 1988
Note : 'per 100 numbers, *Average of Autumn, Winter and summer crops, @number of nuts, price/per quintal

Table-2

The price movements of important crops in Kerala since 1960 (in rupees)

Crop	1960-61	1970-71	%increase in a decade	1980-81	%increase in a decade	1986-87	%increase in a decade	%increase over the period
Paddy*	40·51	90·53	222	156·84	173	243·92	155	595·1
Tapioca*	7 74	20 59	263	40·06	190	94·93	237	1226·6
Pepper*	404 59	616·25	152	1191·54	194	5223·30	438	1291·0
Coconut=	21·50	57 10	259	139·54	246	241 40	172	1122·8
Banana=	6 73	15·69	229	37·94	238	67·19	176	998·4
Arecanut=	2·73	3 73	137	7 58	203	10·53	139	385·7

Source : Statistics for Planning, DES, GOK, Various Issues

* price per quintal = price per 100 nos.

An examination of the land utilization pattern in the State reveals that the proportion of net area under paddy to total sown area is only about 12·5 per cent, whereas 70·12 per cent of the irrigation facilities created in the State is utilised for paddy cultivation. It does suggest that the share of irrigation services utilized for crops other than paddy of the total sown area is below 30 per cent only. Extension of irrigation facilities to paddy crop ostracizing other crops had been proved to be not or economically rational. On the basis of the data of average farm prices supplied by the Directorate of Economics and Statistics, it has been estimated that the gross receipts out of paddy crop is only 59 per cent of revenue accrued from coconut, 28·9 per cent of the earnings from Tapioca, 17·6 per cent of the gain from banana and 13·1 per cent of the yield from ginger. It has also been estimated that, as the increase in productivity of paddy has been upto 20 per cent on extension of irrigation facilities, increase in productivity in the case of crops other than paddy is upto 70 per cent. Hence, there is heavy alternative cost involved in defying crops other than paddy for irrigating paddy crop. It is the financial gain from increase in production as a result of the extension of irrigation services to paddy crop minus the financial loss due to irrigation facilities denied to crops other than paddy.

The price trend of paddy during the period from 1960-61 to 1987-88 had been one of the lowest compared to the price of other agricultural products in the State (see Table-2). This is particularly true from the beginning of the 1970s While the price of paddy has risen 495 per cent during the period from 1960-61 through 1986-87 the percentage of increase in the price of coconut, pepper, tapioca and banana were 1022·8, 1191, 1126·6 and 898·4 respectively The relative price disadvantage of paddy appears to have induced farmers to substitute other crops for paddy.

Despite the heavy financial burden inflicted by investments in the irrigation sector on State finance, the extent and magnitude of success achieved by the programme in extending irrigation facilities remains to be despisingly low. The State's target in this regard has not been fulfilled to any significant measure. The most compelling diatribe or reproof levelled against capital investments in the irrigation sector has been with regard to its ineffectiveness, of even limited extent of irrigation facilities created, in augmenting agricultural production in the State.

Large scale irrigation projects are not only suitable for the agricultural development on account of the State's topographical peculiarities and ecological implications but also misfit in the economic wherewithal of the State. Evolving of a model of irrigation system that does fit in the economic limits of the State and at the same time cohere with the requirements of the State is one of the matters of core significance. For the very same reason of irrigating crop other than paddy being more productive and economically viable, development of small and tiny irrigation schemes appear to offer a better solution to the irrigation needs of the State. In addition, if irrigation has to be extended to crops other than paddy that are cultivated in lakhs of small holdings, minor irrigation schemes alone can be depended upon.

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A Painful Reality

R. C. Rajamani

CHILD labour is a painful reality of the modern industrial society. The number of children working and the scale of their suffering increases year by- year. Ironically, few human rights abuses are so unanimously condemned yet so widely practised. Child labour is surrounded by a wall of silence and is perpetuated by ignorance. Sometime ago, the world observed a "Year of the Child" and more than 100 countries ratified a U.N. Convention on the Rights of the Child. While on paper the issue of child labour ranks high on the global agenda, the stark reality presents a different picture.

No one really knows for certain how many children work world-wide. Estimates vary, with reports citing between 100 and 200 million child labourers all over the world. In the developing world, more than 18 per cnt of children between the age of 10 and 14 are working and in some countries this figure may rise to 20 and 30 per cent. Poverty may be the most significant cause of child labour, but it is not the only one. Often children work because there is little else to do : schools are not available, inadequate or too expensive Concern is growing on two fronts: exposure of children to new and greater risks and an explosion of the number of child workers in the informal, unregulated sector of the economy, as a result of increasing migration, urbanisation and industrialisation. Most at risk are those children who are "bonded" or forced to work under slave-like conditions. Some are sold by poor parents to the wealthy to work, or are virtually imprisoned behind closed doors as domestic servants or prostitutes. Some are kidnapped, to the hot, mind-numbing and strenous labour involved in brick making, sugarcane cutting or in sweetshops.

Children who work in mines, who work as bonded labourers, whose eyesight is damaged by close work on electronic filaments, who handle and breathe chemicals in fields or factories and who spend their childhood in traumatic work are victims of child labour. Working children prematurely lead adult lives, they are physically, emotionally, morally and intellectually damaged. They have lost an opportunity for education that would open up a better future for them. Child labour is not confined to developing countries alone. The growing incidence of occupational injuries among working children in industrialised nations gives cause for concern as well Although child labour is a long-standing problem, it has taken a dramatic and disturbing turn for the worse in the last 10 years Children are now exposed to new and more severe risks, particularly in the unregulated sector of the economy.

Dangerous chemicals in insecticides and fertilisers are common in plantation and commercial agriculture and increasingly used in family farming. Children, who cannot read and who do not know the risks, work unprotected in pesticide sprayed fields and eat with the same hands with which they harvest. Thousands of children sift through garbage for a living, handle medical and radioactive waste from hospitals, discarded bottles of solvents and medicine and leaking batteries.

A recent study of child scavengers showed a high concentration of heavy metals in their blood-lead levels in particular-were so high that their physical and mental development were at stake. Such substances accumulate in the body and create long-term disability and chronic disease. A health study of child workers in glass and metal fabrication workshops showed the children's lungs being grossly impaired from breathing noxious fumes. Children working in the carpet industry spend long hours in cramped positions which deform their bodies. These are permanent conditions; they limit the child's ability to survive.

Dismal Scene

The child labour scene in India presents a dismal picture. About 18 million children upto 14 years of age who should have been in schools, are found in various employments prohibited by law. Official estimates as far back as 1981 put the number of child labourers in the country at 13640872. Today's number is anybody's guess. Parents are compelled to send their children to take up wage/quasi wage employments to the detriment of their health, education and general well-being, mainly due to poverty and to certain social factors.

India and the I.L.O. have signed a memorandum of understanding on eventual elimination of child labour. Under this, the International Programme on the Elimination of Child Labour (IEPC) was taken up towards this January end.

According to offical data, which is 10 years old, agricultural labour attracted the largest number of children - as many as 47,74,000. This constitutes 42·75 per cent of the total child labour force. Carpet weaving, manufacture of matches and fire-works and beedi-making are some of the areas where employment of children continues in violation of law. The various occupations and processes which are prohibited for employment of children below 14 under the Child Laour (Prohibition and Regulation) Act, 1986, include transport of passengers, goods or mails by railway and building and construction industry.

According to official data, as many as 34,000 children were engaged in transport, storage and communication works in 1981, representing 0·31 per cent of child labour. The construction industry employed 79,000 children, constituting 0·71 per cent of child labour. Manufacturing, processing and housing industry employed nearly one million children, constituting more than 8 per cent of the child labour. The mining and quarrying sector employed 27,000 children which is 0·24 per cent of the child labour. Some 7,04,000 children found jobs in livestock, forestry, fishing, hunting, plantations etc. making up 6·30 per cent of child workers. The trade and commerce sector employed 2,46,000 children and others 3,26,000 children together constituting more than 5 per cent of child labour. According to latest government estimates, there are as many as 1.85 crore child workers in India. Other estimates, however, put the number around 5 crore. Of these 23 per cent are working in hazardous conditions despite the fact that the 1986 Act bans child labour in mines, factories and hazardous occupations. Legitimising child labour through the 1986 Act is nothing but State-aided abuse, social scientists contend. Children from Palamau district of Bihar continue to be engaged by the carpet manufactueres of Mirzapur and Varanasi in Uttar Pradesh, though the Supreme Court ordered the release and rehabilitation of nearly 14,000 such children some years ago.

According to a Labour Department report, 85 per cent of the child labour is engaged in the glass industry. The wage of the child labour is a ludicruously low at Rs. 8 per day for 14 hours of non-stop work in adverse conditions. Another area of highly hazardous occupation is the fireworks industry in and around Sivakasi in Tamil Nadu. More than 50,000 children from the town and the neighbouring villages are exploited in the industry for more than 12 hours a day for a paltry sum of Rs 5 to 8 Other industries employing child labour include brassware, precious stone polishing, leather tannery, bidi making and zari-making—most of these prohibited under law.

A 1973 ILO convention recommended a world-wide minimum working age of 15. Twenty years later, a majority of the over 150 member nations are yet to ratify it.

Lacunae

In India, among a dozen legislations dealing with child labour, the major statutes are the Factories Act, the Minimum Wages Act, the Employment of Children Act, 1938 and the Children (Pledging of Labour) Act, 1933. However, lack of uniformity and various other anomalies have left the field open for wily employers to exploit the siutation to perpetuate child labour.

The 1986 Act merely prohibits certain industries out of bounds for employment of children below 14 years and unfortuantely does not seem to view child labour per se as a condemnable concept.

In 1987, the Government announced the National Policy on Child Labour which, among other things, provides for taking up projects in areas of child labour concentration. Among the projects under implementation are the welfare of children removed from the match industry at Sivakasi, a welfare scheme for the children in the precious stone polishing industry in Jaipur and and a similar one for the children in the slate pencil industry in Madhya Pradesh. Similar projects are also under implementation in Andhra Pradesh and Uttar Pradesh. Special schools, which form a major component of these projects, have been set up to provide basic needs like non-formal education, vocational training, supplementary nutrition, health care etc. More than 200 such schools have been sanctioned in the last two years covering more than 12,000 children and an amount of more than Rs. two lakh released for the purpose.

But, despite a plethora of laws and well meaning schemes, child labour continues to grow alarmingly. No pious and well-meaning legislations on the part of the government has made any difference to the plight of the child worker. The sincere efforts of the voluntary agencies with their meagre resources are but a drop in the ocean. Child workers are particularly vulnerable to exploitation because they have little say in choosing their occupation or deciding their working conditions. They have no rights as workers nor can they join labour unions. Consequently, they work for paltry wages in deplorable conditions.

The various laws for improvement in the position of neglected children have been based on the premise that since the root cause of poverty cannot be eliminated overnight, the best solution is to regulate the practice of child labour.

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Tribal Areas Of Himachal Pradesh The Challenges

Dr. H. S. Parmar

IN India the tribals have, in general, been living in relatively isolated and inaccessible regions of forests, hills and mountains. During the pre-Independence era because of various policies, the tribals were deprived of the benefits of the forces of change that were sweeping the outside world.

On the eve of Independence, tribal communities were, in general, entrenched deep in illiteracy, poverty and taboo ridden social structures. Independent India could not afford perpetuation of such a state of affair. So the State was put under constitutional obligation to mitigate the sufferings of these people. The emphasis of various tribal development policies was on bridging the gap between the tribals and non-tribals so that they become equal partners in the new productive process and development programmes. Ever since the planning period, the strategy for tribal development underwent several changes. Search for a vaiable strategy for tribal development ultimately culminated in the formulation and execution of Tribal sub-Plans. This strategy envisaged programmes and priorities for tribal development. Under the new strategy, 'elimination of exploitation of all forms' has been accorded the highest priority followed by the measures to be taken for 'building the inner strength of the communities' and also for tackling economic problems.

In Himachal Pradesh, the 'tribal belt' comprises the two districts of Kinnaur and Lahaul & Spiti and part of Chamba district known as Pangi and Bharmour. These areas form a contiguous belt to the extreme north-east of the State at an average altitude of 10,000 feet above the mean sea level.

Systematic Plan efforts towards economic development of the tribals and tribal areas in Himachal Pradesh started with the formulation and implementation of tribal sub-Plan strategy in 1974. The size, in terms of total outlays, of each tribal sub-Plan increased from Rs. 9·05 crore during the Fifth Plan to Rs. 47·47 crore in the Sixth and Rs. 120.39 crore in the Seventh Plan period. The share of the tribal sub-Plan out of the total Plan outlay increased from 5·75 per cent in the Fifth Plan to 9·00 per cent in the Seventh Plan. Added to this is the Special Central Assistance of Rs. 1·89 crore, Rs. 6·49 crore and Rs. 12 crore during these three Plans.

In spite of efforts of the State, the desired results are not forthcoming in a perceptible way. The pace of economic development has been gradual. In the year 1981-82 a little above 43 per cent of total household lived below poverty line in tribal areas as against 38·52 per cent in the case of the State as a whole. This percentage was highest in the case of Spiti (82 per cent), followed by Pangi (64·77 per cent) and Bharmour (61·07 per cent). The incidence of absolute poverty was the least in the case of Lahaul. It is true that these inferences have been disputed, yet it will be difficult to just ignore these figures.

The Government of Himachal Pradesh supplies subsidised food grain to these areas. In spite of the fact that development of agriculture has remained a priority sector during Plans the tribal areas are facing shortage in the supply of food grain. The State Government supplies subsidised food grain to these areas. A total outlay of about Rs. 50 crore was assigned to the agriculture scector during three Plans. There are indications of changes in the cropping pattern but it is difficult to say whether these changes have benefited the families which live below poverty line.

Constraints

In tribal areas of Himachal Pradesh, agriculture is the main occupation. But there are many problems in it. Because of the typical geophysical and climatic conditions of the region, only a very small portion of total area is available for cultivation. Out of total area of 5,55,788 hectares (according to village papers), only 19,656 hectares constituting 3·54 per cent of the total area was the cultivated area (total cultivated area has been taken as the sum of 'net area sown' and 'current fallows). Out of the total cultivated area within the tribal belt about 50

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Mining And Environment Planning

Arijit Bagchi

DAMAGE to land and environment during surface mining is inevitable as vegetation has to be removed and huge quantities of top soil and waste rock to be temporarily or permanently shifted to a new location earlier covered by greenery. This leads to loss of grazing and agricultural land, erosion of surface soil from waste dumps, siltation, loss of aquatic life, water pollution and damage to flora and fauna.

It is estimated that in India 20,000 Ha has been degraded from mining and another 55000 Ha of fertile land was degraded to meet our requirements of bricks. It is claimed that the total land area affected due to open-cast coal mining alone will be about 2,00,000 Ha during the next 20 years. It is further reported that 73 per cent of the blocks identified for detailed exploration by CIL and Singereni coal-fields involve drilling in forest areas.

Ecological and Socio-economic consequences of changes in the use of land have not received its due importance in our reclamation schemes. A comprehensive policy is necessary to exploit the potential for land reclamation and sustainable development.

Mining, in most cases results in displacing a large section of people from their resource base. Since, most of the mines are in forest areas the symbiotic relationship between the tribals and forests is affected. Unless socio-economic conditions and social justice are taken into consideration, it would result in crisis among the people residing around a mining area.

Mining activity also affects the natural bio-diversity and leads to erosion of environmental richness It would cause high density of carbon di oxide giving rise to green house effect, acid rain and overall climate changes.

The first important step to encourage the industry to tackle environmental problems was the January 81 report of the working group on mining and environment. In early 1992 an Environmental Appraisal Committee was constituted for granting environmental clearance for large minng projects. It was only with the amendments of Mines & Minerals (Regulation and Development) Act 1987 in July 24, 1986, that provision has been made for non-coal mines about storage and utilisation of top soil, backfilling of overburden and waste rock and restoration of land to its original use as far as possible. The revised National Forest policy 1988 advocates that whenever mining is allowed, beneficiaries will have to repair and revegetate degraded forest land or land covered with trees in accordance with established practises.

Rehabilitation

The rehabilitation strategy needs to be broad-based and made inter-diciplinary. Short term measures are not of help in restoration of stable and self sustaining eco-system nor can it achieve the goal of sustainable eonomic development.

Although the mining industry causes ecological damage it rarely takes appropriate cost effective measures in dealing with it,

Storage of top soil, selection of ecologically and socio-economically suitable species, loss of fertile soil due to erosion, loss of water retentivity, stall feeding, improvement of hydrological regime, accelerating natural regeneration, enlisting peoples' participation and support in afforestation by meaningful income generating activities, fuelwood conservation, wood substitution and social fencing etc.

The mined waste land should be treated as a part of the eco-system of any specific locality. The development plan should be a need based one and blended with action plan prepared for the region under the National Wasteland Development Programme. The period between first damage and last repair should be so planned as to leave the waste dump fully restored by the time the mine stops producing.

The important factors to be considered for preparation of action plan are : land, soil characteristics, climate, rainfall, population, demand and supply of fodder, timber and other bio-mass needs of the adjoining areas, financial and management resources etc. The objective should be to plant multi-tiered and diverse vegetation for ecological balance as well as species which have direct utility to the community such as fuelwood, fodder, timber trees etc.

Consultation with local people will help in enlisting their cooperation and deciding the correct species.

It is observed that nitrogen fixing leguminous trees like *Acacia Auriculiformis* show a very fast growth action by broadcasting of seeds of shrubs and grasses collected from around the mining dumps and other areas also help in improving the soil quality over a period of time.

Techniques

Change in techniques from dig and dump mining to continuous system has been adopted increasingly by the western world along with sequential mining technique. The methods have not only proved to be environment efficient but cost-effective also. The mining philosophy has therefore to be re-oriented so as to promote preventive strategy options to minimize potential environmental damage. Promotion of acceptable substitutes and recycling of all metallic wastes will reduce the environmental damage considerably and will be of much help to achieve sustainability in the long run.

Mineral production in India is not evenly distributed. Half the nation's mineral wealth comes from 40 districts of Central and Eastern India—the tribal heartland of the country. Considering the symbiotic relationship between people and forest, especially in tribal areas it is essential to involve the people in all stages of development of mined waste land.

Limited research have been undertaken in the area of mineral wasteland development. It is therefore, essential that field oriented research should be co-ordinated to fill the gaps and to refine the existing practice for mined waste land development. The Indian Bureau of Mines, Forest Research Institute, CMPDI and universities should actively be involved in undertaking research to disseminate new and appropriate technologies. The mining companies both in the public and private sector should sponsor such research activities. Then only we can attain eco-friendly indigenous mining techologies. □

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Accordingly, employment of children above 12 years has been allowed in selected areas of the organised sector, with suitable safeguards against exploitation and provision for educational and recreational facilities. Apart from stipulating the minimum wages, weekly rest days and hygenic working conditions, the 1986 Act also takes care of the health needs of child workers by banning overtime and night work.

The Constitution provides safeguards for children through certain directives. Article 39, for example, says "The State shall, in particular, direct its policy towards securing (a) that health and strength of workers, men and women, and the tender age of children, are not abused and that citizens are not forced by economic necessity to enter vocations unsuited to their age and strength, and (b) that children are given opportunities to develop in a healthy manner and in conditions of freedom and dignity and that childhood and youth are protected against exploitation and against moral and material abandonment."

If child labour continues unabated despite legal and constitutional safeguards, the reasons are not far to seek. These are the same as those responsible for the general lack of development of the country—poverty, ignorance, illiteracy and a lack of social awakening. The solution lies in rapid economic development of the country, eradication of illiteracy which covers a little less than half of 84.5 crore people and carrying health care to one and all.

Though steps are being taken in this direction through the economic reforms, literacy movement and the scheme for health for all by 2000 AD, the pace is rather slow and halting. A strong political will and an enlightened public alone can carry the day for the child, which is the basic asset of any society.

At the global level, the International Labour Organisation (ILO) has been engaged in a major effort to halt the most unacceptable forms of child labour and to begin reversing the trend towards reliance on child labour for economic support. The International Programme on the Elimination of Child Labour (IPEC), an expression of this commitment, was launched in India in January. The IPEC is also being implemented in five other countries—Brazil, Indonesia, Kenya, Thailand and Turkey. IPE seeks as part of its strategy the full collaboration of, including joint work with, other UN agencies, particularly UNICEF, UNESCO, WHO and UNFPA. An amount of US dollars 2·25 million has been alloted for the implementation of action programmes in India for the period ending December 31, 1993. The ILO and the Government of India signed a Memorandum of Understanding on IPEC wherein it was reaffirmed that national efforts would be aimed at the eventual elimination of child labour.

It is significant that the project aims to reach its objective not only through Government endeavour but by the vigorous and enthusiastic activities in every section of society, including voluntary organisations.

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Application Of Information Technology In Rural Development

Avijit Dutta, D.C. Misra and Shefali S. Dash

THE world Conference on Agrarian Reform and Rural Development has declared that "......greater interaction between development personnel and the masses through an efficient communication system are prerequisites for the success of the rural development strategies" (WACRRD/AFO, 1979).

The concept of development was first conceived when primitive man organised rural settings/hamlets followed by agricultural activities. The journey continued with the induction of simple machines like wheel, pulley, lever etc. and era of semi industrialisation began which evolved into industrialisation phase with steam engines and super industrialisation stage with development of electronics industries. The era of Information Technology (IT) is the result of continuance of the said process of development.

In the last 40 years, power has shifted from steel to IT. With the development of electronics industries we have experienced information explosion. The information available is not always organised in a desired way. Thus it is the demand of the day to evolve a mechanism to organise the vast quantum of information available in various sectors and more so in rural areas where accessibility to modern amenities is very difficult. Development planning has to be realised and practised in future, with the assistance of "information" which is dynamically changing. Only IT culture has same pace of work which can fulfill this demand successfully. This marriage will give birth to a new school "Development Informatics".

It remains to be seen where we stand vis-a-vis the developments around the world. It is an undeniable fact that India has missed various stages of development due to colonial repressions over a considerable period of time, which blotted our vision when big happenings around the world shook traditional concepts and believes. Though we were no-where near the epi-centre of the waves of changes, ripples at the shore kept us giving the hint of it. After independence, we relied on transfer of technology and its absorption in order to bridge the technological gap. Hence we are not unaware of the IT revolution and induction of computer concepts, which dawned during the sixties and continued through eighties. During eighties, Government gave impetus to this area and finally we have stepped into Computer & communication (C & C) culture (NICNNE, INDONET, RABMN etc). Several databases have been designed and developed by NIC for development administration, in different sectors, which are being used and accessed from various nodes using NICNET. This is the network which has reached nearest to the rural people and is helping them in day-to-day activities like old age pensions, land record maintenance, development of education statistics and other socio-economic programmes.

Emerging Issues

We have arrived at an age where time and information is capital. The issue is whether one is informed or uninformed ! If India has to join the fast track of development then present culture of development has to be reviewed. As India is predominantly rural, this brings us to the key issue of rural management.

The stagnant administrative structure which we inherited from our colonial rulers (which was basically meant for law & order, collection of taxes and was devoid of development perception) is generally a misfit in view of recent approach to the development planning and with the present culture of development.

Let us consider the case of our policy on rural development which is centered around a programme known as "Integrated Rural Development Programme (IRDP)". At the time of its conception, it was envisaged that it will be a totally integrated block development programme and will be implemented by the Block Development Officer (BDO) at block level in view of existing resources,

infrastructure and need of the people. In spite of such good framework in just 12 years it has reduced to "DRDA controlled, target and achievement oriented, subsidy & loan distribution scheme"!

May be bottom line fact behind this failure is lack of participation from beneficiaries in utilising the financial assistance extended to them. But for the lack of education and training with right perspective, which could have generated better understanding of market forces and competition involved, amidst rural beneficiaries. At the same time system also failed to envisage the availability of required forward and backward linkages for any venture in rural areas.

What remains a disturbing fact is that a vast chunk of rural population remained out of the reach of the benefits of recent developments. Many of them are quite aware of it. As the development of rural mass essentially implies the development of India, application of IT in planning the development of rural India becomes a serious issue.

A lot of information is available with CSIR Laboratories, INSDOC, Krishi Vigyan Kendras, Libraries of national Institute of Rural Development (IRD) and State Institute of Rural Developments (SIRDs), etc. as a result of committed scientific/technical research/investigation, which could be very useful to the rural people if supplied to them. IT could play a dominant role in achieving these.

Well, the afore stated points very well construes our weakness and threats. Our strength lies in vast pool of technically skilled manpower which is well experienced. In fact, effective use of IT has brought in quality service in certain areas. This is evident from development of Computer & Communication Networks, computerisation of railways reservation system, banking services to a certain extent, online airlines reservation system and many more database development activities in both Government and Non Government organisations.

The skeleton of any development concept is :

Energy ⟶ Direction ⟶ Skill ⟶ Results

where energy comprises factors like a strong sense to grow, enough funds, and a desire to utilise the funds for right cause. This requires right direction and a control process, which further requires a skill to bring the dreamed development concept into reality. These steps if undertaken into a process, will certainly yield results.

The reasons for not being any where near the depicted chain of actions is the failure to fulfill any one or more of the shown parameters. The reasons behind may be :

— Lack of coordination among various parties

— Lack of authentic data on any scheme

— Lack of mechanism to analyse

Our experience reflects that some of the above mentioned problems could be solved with the help of effective management systems based on Informatics culture.

Rural Management And IT :

In essence, the development process is a planned process of resource input into rural areas. And management is planning, action and control of resources like man, material and machine to achieve an optimum level of results. Every activity in a well organised system undergoes a PARF loop ;

This chain of action keeps management control activities going. In fact this is a continuous process. Information technology in present day plays a significant role to make a management control process meaningful. In rural development activities, this loop remains incomplete to a considerable extent so far as result and feedback aspects are concerned.

In government planning process, 'Return on Investment (ROI)' always remains a dubious issue. ROI may not be always calculated in financial terms but be understood in broader perspectives. The result of a planning and action process may be conceived in terms of overall development which in turn may be understood in terms of variables like production level, literacy rate, life style, health, mortality rate, speed of industrialisation, accessibility, etc.

This recommends for a necessity of micro level assesment mechanism (like Development Index) to judge the impact of various measures adopted.

Another management problem in development process is the speed mismatch in completion of respective tasks by various agencies leading to a failure of handshake in establishing expected linkages which are vital for the implementation of other schemes.

Possibly the answer lies in the fact that rural development has many processes which do not get easily captured in a typical system design since it involves much more than the handling of customers in bank or an airline office.

At the same time, there is a complex and dynamic set of forces at

Planning ⟷ Input ⟶ Action ⟶ Result ⟶ Output

Feedback (Result ⟶ Feedback ⟶ Input)

play which keep interacting and interchanging among themselves. It is, therefore, not possible to capture the entire scenario of dynamic change and transactional activities that take place in the rural dimension within a structured system design Hence it demands for a *flexible system design.*

Autonomy, accountability, reward and punishment are key factors to keep a system in a balanced phase. Absence or overpresence of any of these factors would disturb equilibrium and results will not be forthcoming. Absence of these factors in district level administration is tangible.

It is well recognized that a dependable information system is an essential pre-requisite for planning and management of any development process. The planners and administrators need accurate information about the felt needs and aspirations of the target beneficiaries. Equally needed is the information on tools and available resources. Moreover the people, the recipients of information, who are to be motivated in the national development process are the focal points of all development and communication activities

Hence, we have identified the necessity of Management Control System, concept of system dynamics, structural needs and project management. The role of information technology is to bridge various steps of management procedures, strengthen it, manage the data or information related to millions of people and evolve a new vibrant management culture.

Case Studies

The logic given in the paper could be substantiated with the onsite demonstration of the few situations where IT assisted rural management has improved situations beyond expectation. May be investment, initially, is of high order in terms of hardware and software, but ROI, in long run, is also significant.

Department of Rural Development, Government of Sikkim has undertaken a "Family Survey" of around 75,000 families (i.e. population around 3,65,000) to assist planning and monitoring activity going on in the State. The data have been collected and entered in the computer. NIC developed a comprehensive system for this purpose. This has become very useful for various departments and also acting as a source of co-ordination.

Management of primary education systems, builder of the future, in rural terrain is one of the difficult tasks. NIC has developed software and it is being implemented in most of the districts to manage their routine activities like student/ teacher ratio, grants per student, growth in students per session, infrastructure available at schools, accessibility, efficiency of a teacher, transfer, promotion, leave salary etc. Most of the District Education Offices wherever such a system is implemented today, has up-to-date information about each teacher's activity. This gives him/her sufficient time and knowledge to plan the various actions in advance.

Maintenance of up-to-date land records is the key for revenue collection, settlement of local dispute and for development purposes. Identification, acquisition and utilisation of gram sabha or encroached land for development purpose in rural area is very difficult in the absence of a proper system. NIC and other agencies have embarked on this uphill task of developing computer based land record system which provides all features like Patta number, owner name, size of the patta, location etc., including mutation process. This is being implemented in 20 districts of the country. In Andaman & Nicobar the owners have been given Land Patta Pass Books under new management scheme.

Recently NIC has been given the responsibility to develop the total monitoring and planning system for a scheme called. "Development of Women and Children in Rural Areas (DWCRA)". Almost a year is over for pilot phase implementation in 19 districts and results are very encouraging. The officials at district level have begun to understand the power of "proper storage" and retrieval of "Information". Not to say the improvement in quality of the scheme implementation.

Conclusion

Based on our experiences we believe that IT is in a crucial stage where its marriage with development planning is essential. The evolution of a new culture is imperative. NIC is already in the process of establishing IT culture amongst various Government departments in general and districts in particular. NICNET has already reached the gateway of rural geography i.e. district. The day is yet to come when district development administration will have "Development Information Room" similar to the "Police Control Room" where the facilities like FAX, TELEX, Telephone, Computer & Communication, Mobile Radio Communication, satellite imagery data analyser, etc. would be available and its services would be extended to the authorities and common man. That also calls for opening the development information into public domain.

It remains a challange for us to see how best we could design future policy with respect to above mentioned issues and motivate rural administration and IT technologists to bring this concept into reality. A good beginning has already been made.

The authors belong to National Information Centre, Planning Commission, Lodi Road, New Delhi.

A Unique Option For Illumination

Amitabha Ray

THOUGH electricity is considered as an entitlement, it is not yet available to the millions of villagers of the country. Again the quality of electricity in rural areas is so poor that people have to depend on kerosene oil.

Solar Photovoltaic Lantern is a realistic and commercially viable alternative to these problems. A SPV Lantern consists of a compact fluorescent lamp, an electronic inverter, a low voltage cut off unit, and a battery, all housed in a single mechanical structure, similar to that of a conventional kerosene lantern or petromax unit. The SPV Lantern is light in weight, portable, robust, reliable, serviceable, energy efficient and low cost. The desirable feartures of a SPV Lantern are :

(a) readable illumination over a room of 10ft. x 10ft.,

(b) portable and light weight (about 3·5 kg),

(c) lamp and battery life of at least three years, and

(d) priced around Rs. 1000, excluding the SPV module.

Considering all parameters of different components of SPV Lanterns of different specifications, it has been found that the following specification of a SPV Lantern is most attractive to the consummers.

(a) Lamp : 7 Watt Compact Fluorescent Lamp (C.F.L.)

(b) Battery : 6 Volt., 12 Ampere Hour and 3·00 kg weight Lead-Aid type.

(c) Invertor : It should be high frequency (20 kilo-hert to 100 kilo-hert) high efficiency (more than 80%), robust cost effective, capable of driving the compact Fluorescent Lamp without degrading its life and without starting troubles. It may be of either single transistor or double transistors type.

Apart from troubles one faces during the collection of kerosene oil which may be derived in real units like time, man-power etc. along with mental tension and anxiety on availability, the cost per kilo-lumen-hour of light through conventional wick-type lantern is about Rs. 2·09 considering the price per litre of kerosene oil as Rs. 2·50. The cost for same illumination unit using dry cell comes to Rs. 17·60. And the cost calculated for same illumintion produced by a SPV Lantern is 60 paise. Further considering different sets of discount and inflation rates it has been derived that cost of indentical illumination through. SPV Lanterns and conventional wick type kerosene lantern increases in terms of 27% and 100% respectively. Finally, by using SPV Lantern environment may be kept pollution free.

Experience

During last one year, SPV Lanterns of above specifications have been introduced in domestic sector, offices, hostels and tourist lodges in West Bengal. One village named Kulapara, district Midnapore, consisting of 220 households has been selected for illumination through SPV Lanterns in the domestic sector. Here the SPV modules are kept on the roof of a building, which is commonly known as charge station. Every alternate day villagers bring their SPV Lantern for recharging. A single charging costs 50 paise. This helps the charging station in maintaining its operational staff without any external help. The Department of Science & Technology and Non-Conventional Energy Sources, Government of West Bengal, designed and partially shared the capital cost. The Ministry of Non-Conventional Energy Sources provided the SPV Modules and the remaining cost was shared by the villagers. The same process is being adopted by the School of Energy Sources, Jadavpur University with the financial help of Ministry of Non-Conventional Energy Sources. The Primary Milk Co-operative Society offices of remote villages of Murshidabad and Darjeeling have already got this benefit and the demand has been increasing

Dozens of Block Development Offices of districts of Midnapore and South 24-Parganas got illuminated by SPV Lanterns. A tourist lodge at Ajodhya Hills (district Purulia) and some hostels have been getting this benefit for last couple of months. Now the demand of SPV Lanterns has increased so much so soon that the manufacturers are not in a position to cater to the demand.

Employment

The price of one *SPV Module* (as on 31.12.1992) of 30 Watt is around Rs. 7500. Its installation cost along with the charge controller, transportation cost etc. is about Rs. 1500. By a capital investment of Rs. 9000, four SPV Lanterns could be charged which are able to illuminate for 8 hours each. Again each SPV Lantern costs Rs 1000. Thus, four families can solve their illumination problem without any pollution of environment. If the major capital cost is being shared by Government, panchayats etc for installation of say 25 SPV modules in a village of 100 household and some price is charged for each charging, two men may be easily employed for operation and maintenance of the SPV module unit. The revenue earning may be raised if the facility of TV battery charging is provided by putting some more SPV modules in the same place. Thus, the entire operation of transporting kerosene oil in remote areas by using diesel, petrol, and troubles of collection of kerosene oil by the users, etc. can be avoided. Later, there would emerge manufacturers in district and sub-divisions who will manufacturer and supply the SPV Lanterns. They will also have to set up their after sales servicing network. Further, some people would also engage themselves in installation of SPV modules. Manufacturing of SPV module is costly. But batteries with standardised specification can be made in the small scale sector. As the programme takes off there would be enough employment potential.

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per cent falls in Kinnaur alone. Due to geo-climatic conditions, in large parts of the tribal belt only one crop is possible in a year. Only 28·05 per cent of the 'net area sown' is cultivated more than once whereas in the case of the State 65·43 per cent of net area sown is cultivated more than once. In the case of Lahaul & Spiti this percentage is as low as 4·56. Distribution of land holdings shows that the majority is in the marginal and small size. But the concentration of 'area operated' has been in the 2·0 to 4·0 hectare size-class which is termed as 'semi-medium'. In Spiti, about 60 per cent of total land holdings are marginal (with less than one hectare of operated area). Under these circumstances, tribals have to put in very hard labour to survive the vagaries of nature and to tap all the available resources to make a living. Small size of land holdings combined with other constraints force a marginal farmer to stick to the age-old cropping pattern and production of coarse grains which is his staple diet. It is the integrtion of agriculture and animal husbandry that sustains him. A shift in the cropping pattern in favour of horticulture and vegetables does not ensure him subsistence. Returns from cash crops in contingent upon numerous internal and external conditionalities which very often are beyond the control of a small producer. The only exception seems to be the production of seed potato in Lahaul. The credit for this goes to Lahaul Potato Growers Society that provides wherewithals for its marketing. It may be apprehended that the benefits of changing cropping patterns are reaped by a few well to do and/or bigger land-holders while the small and marginal farmers are left high and dry.

The strategy adopted during the Sub-Plan period for the development of agriculture has two facets. First, efforts are being made to increase the production and productivity in this sector through increased supply of inputs like high yielding variety seeds, fertilizer and other plant protection materials. Secondly, efforts are being made to affect a change in the cropping pattern through rendering technical knowhow to the farmers regarding cultivation of cash crops along with the supply of necessary inputs for the purpose. But the question is to what extent are small and marginal farmers being benefited, given the geo-climatic and institutional constraints of the area. In spite of the efforts made, area under high yielding varieties is abysmally low in these areas. The need is, perhaps, to focus on improving the varieties of local cereals for which experiments have to be made within local geo-climatic conditions. Emphasis on High Yielding varieties of paddy and wheat is, perhaps, misplaced as far as these areas are concerned.

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Textile Industry-The Number One Forex Earner

TEXTILES, the single largest industry accounting for about 20 percent to the total industrial output and employing about 15 million people, is also the single largest contributor to India's export earnings. Textiles, comprising garments, handlooms, cotton, synthetic yarn, wool and woollen garments, are exported to almost all the countries, the major ones being European Economic Community member countries, USA, Canada, Japan, Switzerland, Sweden and Australia.

Textiles earned foreign exchange worth Rs. 8366 crore in 1990-91 as compared to Rs. 4366 crore in 1988-89. It accounted for Rs. 5918 crore during April-September 1991 registering an increase of 34 2 percent over the corresponding period last year. This remarkable performance can, to some extent, be attributed to the various promotional measures taken by the Government to promote the textile exports.

Promotional Measures

The recent trade policy reforms, designed for export incentives which replaced the cumbersome Replenishment (REP) licences with EXIM Scrips and the system of advance licensing, have helped the textile industry to boost its exports. Apart from liberalising the trade policy, steps have been taken to speed up the modernisation of the industry by allowing import of sophisticated textile machines at concessional duty. The new textile quota policy, for the first time, has introduced a Manufacturer-Exporter Entitlement (MEE) of 12 percent with a view to encourage modernisation of the machinery base of cotton textile industry.

Some other important promotional aspects include fixing of minimum export prices for textile items subject to quota restrictions in terms of convertible foreign currencies, improvements in provisions of Garment Export Entitlement Distribution Policy, organising Buyer-Seller meets and study tours in foreign markets to popularise export products. Moreover, a scheme for subsidising air freight of garment air cargo during the peak period by non-scheduled flights has been made operative.

The Government has also taken some steps in consultation with the Apparel Export Promotion Council and other agencies related to garment trade to boost the garment exports. Under the new changes, the percentage of allocation in the MEE System has been raised from 18 percent to 20 percent to promote garment exports. Similarly, the present limit of 125 percent on Past Performance Entitlements (PPE) and MEE allotments taken together has been removed. The quota of 75 percent under Non-quota Exporter Entitlement (NQE) system for thrust countries has also been abolished. The base period under this system has been made at par with the PPE system. Further, the allocation in this system has been raised from 10 percent to 18 percent including a 2 percent reservation exclusively for handloom garments.

More Competitive

The 25 percent concessional import duty scheme for capital goods with export obligations under the New Import-Export Policy has helped the textile industry to become more competitive in the international market. Similarly, import duty on 11 items of trimmings and embellishments in Appendix 17 of the Import-Export policy were put under a concessional duty of 45 percent.

In order to upgrade the quality and ensure quality export, the Textiles Committee exercises strict quality control for textile products. Import of a large number of sophisticated garment manufacturing machinery and other textile machinery has been allowed under various concessional custom duty schemes, which will add to the better quality products with higher unit value realisation.

Minimum support prices announced by the Govt. every year ensures reasonable returns to the cotton growers after covering the cost of inputs. Whenever the prices of cotton yarn fall below the minimum support price, Cotton Corporation of India provides price support.

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CFTRI : Exploring Frontiers Beyond Dal-Roti

Vasudha Gupta

LIFE styles are changing fast, so are the food habits The long and cumbersome preparations of traditional foods are being reserved mostly for ceremonial occasions or holidays now. The stress on 'quick foods'—of course, these are also nutritious and wholesome—have led to the rapid growth of food industry all over the world. Almost every other day, a new ready-to-eat food product enters the market. With six to seven billion people crowding the earth by the end of this century, the food industry is poised for a phenomenal growth.

India, even by the most conservative estimates, will be the home of one sixth of the world population by the turn of this century. Apart from developing a new range of fast food products, both cheap and nutritious, the most essential need is large scale technological innovations for the food preservation and processing industry Continuous efforts are to be made to improve the various post harvest operations in the industry-which functions at all levels, medium, small and cottage scale-to ensure greater benefits to farmers, traders and consumers alike Research and education are vital components of this process.

Centre Of Excellence

The potential of the food processing industry was visualised by the Government immediately after Independence. On 21st October 1950, the Government set up the Central Food Technological Research Institute (CFTRI) with its headquarters at Mysore and six regional centres at Mangalore, Hyderabad, Bombay, Nagpur, Lucknow and Ludhiana. Today the Institute is the largest of its kind in the world and is recognised as a centre of excellence by many quarters, including the United Nations CFTRI, as on today, has developed 250 technologies which have been passed over to the Indian food industry.

Activities

The primary mandate of the Institute was to usher in technical and economic innovations for the nation's food and allied industries through research and development directed towards the best possible utilisation of the food resources With this in view, it undertakes a wide range of activities, including generation and application of relevant technology, consultancy and expertise, analysis, testing and evaluation of products, answering of technical enquiries, personnel training and information dissemination. The activities also include beneficiation of agro-horticultural produce and its by-products for human use, manufacture of high value products, development of nutritious foods and modernising the preparation of traditional Indian foods to produce ready-to-serve and ready-to-cook products.

The initial thrust of CFTRI was on protection of stored food grain from insects, rodents and micro-organisms. With the increase in production, the emphasis shifted towards the development of appropriate technology to extract maximum yield through better food grain processing, flour milling and baking technology.

In the quest to consolidate the gains of the Green Revolution, CFTRI has made tremendous breakthrough in the area of food grain storage. The technologies developed include homescale fumigation under different conditions, pest-proof emulsion (PPE) for treating the outside surface of gunny bags, uro-base for bag stacks to prevent entry of insects, storage structures using locally available materials like mud, straw, brick and improved storage structures with clay, plywood, ferrocement and metal. All these technologies are widely used all over the country including the Governmental agencies.

Stiff Competition

The CFTRI's technologies for spice oleoresins and spice oils from pepper, cardamom, ginger, turmeric and chillies have paved the way for the establishment of an indigenous spice oleoresin industry in India offering stiff competition to western enterprises. These ventures have also opened up export markets for many new spice products. More than 35 industries have already availed of CFTRI technologies on oleoresins and spice oils. Exports in this sector are now to the tune of Rs. 28 crore annually.

The knowhow developed by the Institute for dehydrated green pepper, bottled green pepper, green cardamom and white pepper have opened new export opportunities. The Institute has also devised a technology for encapsulation of spice flavour, now widely used in food and pharmaceutical industries. CFTRI is now contributing consultancy and technological expertise to Nepal to set up a spice processing complex.

Being an active participant in the National Technological Mission on oilseeds, CFTRI has developed a commercially viable process using hydrochloric acid for stabilising rice bran against lipase activity which affects the quality of the oil. A simple, safe and cost effective equipment has been developed by the Institute for this. The bran so stabilised can be stored to extract the edible oil. The integrated process developed for the extraction of good quality edible oil from sunflower seeds has also been extensively accepted by oil millers. The improved technology standardised by CFTRI for extraction of mustard, rapeseed and toria seed yield high pungency oil desired by consumers.

Asia's First

The International School of Milling Technology (ISMT) at CFTRI - the first of its kind in Asia and fourth in the world-serves India and South and South-East Asia for research on flour milling and baking technology. Optimisation of milling conditions for wheat, improvement in the quality of wheat flour for baking, formulation and utilisation of composite flours based on wheat and other cereals and millets, pulses, tubers and edible oil seed meals in bakery products are some of the successful ventures of ISMT.

The Institute has developed a variety of technologies which can revolutionise the milling sector and generate employment in rural areas.

Considerable progress has also been made in the area of meat and poultry processing. The emphasis here is on developing new consumer products, improving the quality of known products and storage practice. The Institute offers know-how for many meat products and packaging of these products. The technology to manufacture egg powder for ready and convenient use has been developed. Other products include an egg coating oil, which can double the storage life of the eggs and an egg washing powder to remove dirt and microbial load from egg surfaces. The improved canning methods for fish enhances its flavour and taste, which will be of a great asset in the export market. Knowhow for freeze-drying of fish is also available at the Institute. Scientists at the Institute have also worked out a design for a small abattoir, where the essential principles of modern slaughter house practice can be successfully adopted. Short-term training courses in modern abattoir practices are also conducted by the Institute.

An achievement, which has been widely acclaimed is the development of various inexpensive protein-rich foods and drinks and several healthy food formulations. A variety of convenience foods, including dry, ready-mix powders for making popular dishes including idli, dosai, vadai, gulab jamun, jilebi etc. and many snak items have been developed. Some of these ready-mix flours can be made even at the household level.

The main task before CFTRI in the years to come will be that of improving every facet of the producer—consumer relation in the food market against the background of a burgeoning population. Then, there is the added challenge of the expanding frontiers of food technology. CFTRI is all set to explore further into this vital area.

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Domestic Sector

The performance of textiles even in the domestic sector has been satisfactory. Organised sector of the industry provided 2720 million sq. mts in 1990-91 while the handloom and powerlooms of the unorganised sector contributed to the tune of 17,634 million sq. mts. The per capita availability of cloth has reached 20.89 sq. mts. in 1990-91. The per capita consumption of cloth in the year 1988 was to the tune of 16.35 metre only.

Much thought has been given by the Government to sustain the textile output specially in the unorganised sector A project has been launcehd for the welfare of weavers who have to work in several adverse conditions. It envisages an Integrated Handloom Village Development in which 24 villages, having approximately 100 weaver households each, would be taken up each year Such villages will be chosen from various parts of the country so as to encompass different traditional. ethnic and sometimes languishing weaving crafts. The project would take care of several other areas like supply of raw materials, equipments, training of weavers, marketing support and upgradation of managerial skills.

The second scheme has specially been formulated for the upliftment of the destitute weavers. This scheme of 'Margin Money for Destitute Weavers' provides capital support to them through an organisational set up. Capital support is also provided for skill upgradation wherever low income level is identified with low skill level. The scheme further envisages the destitute weavers to form cooperatives among themselves for which a Margin Money of Rs. 2000 per destitute weaver will be paid to each cooperative society subject to a maximum of Rs. 11 lakh per society. ☐

Towards A New Thrust To Textile Export

Ashok Gehlot

TEXTILE exports accounting for 30 per cent of the total exports, is the single largest foreign exchange earner. Textile acquires distinction in the export basket of India as it enjoys competitive edge, tremendous growth potential and low-import intensity as compared to the exports of other manufactured products. As the ongoing economic reforms also focus on stepping up exports the Government has identified textiles as the thrust area of development. A number of policy and procedural initiatives have been taken up to help textiles achieve its full potential.

During the last two decades the textile exports had been resilient and adaptable to the dynamics of the world trade. The most commendable had been the performance of the clothing sector covering readymade garments and knitwears. Man-made fibre products, though late entrants in the export sector, have also made a strong showing in recent years.

The overall textile exports during 1991-92 amounted to Rs. 14,379 crore which represents an increase of 44.8 per cent over the exports during 1990-91. These exports also exceeded the target of Rs. 13,202 crore by 8.9 per cent. Even in dollar terms, the exports during 1991-92 amounted to 5,965 million US dollars, recording an increase of 4.4 per cent those during 1990-91. These exports also exceeded the target of 5,451 million US dollars for 1991-92 by 5.8 per cent. During April-November 1992, textile exports are estimated to the tune of Rs. 11,309 crore as compared to Rs. 8270 crore during April-November 1991, representing an increase of 36.7 per cent. The corresponding exports in dollar terms are valued at 3,967 million US dollars and 3464 million US dollars recording an increase of 14.5 per cent.

The target for 1992-93 has been set at Rs. 17,796 crore equivalent to 6349 million US dollars. This target in rupee terms is higher by 23.8 per cent and by 10 per cent in dollar terms over the performance in 1991-92.

Despite the large size of the textile industry and avilable resources, India's presence in the world market for textiles is hardly two per cent. Even though our performance in the recent past has been impressive, some of the Asian competitors have done even better. In fact, the competition is likely to become fiercer in the coming years.

The Government has been responsive and sensitive to the needs and aspirations of the industry and has taken a number of initiatives These are regarding the areas of Import-Export Policy, modernisation, foreign collaboration, joint ventures, quality standards and 100 per cent Export Oriented Units (EOUs) etc The Liberalised Exchange Rate Management System (LERMS) introduced in the Union Budget for 1992-93 has resulted in partial convertibility of the rupee. The partial convertibility of the rupee is more beneficial to the exporters than the earlier exim scrip scheme. The benefit is particularly significant for textiles and clothing sector where the import intensity is low.

Following the delicensing procedure in April 1992 all the capital goods required for the textile and clothing industry can now be imported without any licence. The textiles and clothing sector are now entitled to concessional duty of 25 per cent and 15 per cent respectively with appropriate export obligation under the Export Promotion Capital Goods Scheme.

New Look

Recently a special value based advance licence scheme has been introduced which will enable garment exporters to import fabrics without any difficulty. They will not have to

fulfil the quantitative norms now. In order to speed up the process of modernisation of garment industry, Government has decided to increase the permissible level and investment in the garment sector from Rs. 75 lakh to Rs 3 crore with a corresponding increase in the export obligation from 30 per cent to 50 per cent.

Import of second hand machinery required by textile and clothing industry has become easy now. If the second hand machinery to be imported is not more than seven years old and if its residual life is not less than five years then no licence is required for the import. This enables easy import of machinery from countries like South Korea. The value limit for duty free import of tags and lables etc. has been increased from Rs. 1000 to Rs. 10,000.

Procedures relating to the transfer of past performance and non quota entitlement in respect of garment exports to quota countries have been simplified considerably. A scheme has been introduced for submitting legal undertaking in lieu of Earnest Money Deposit Bank Guarantee for extension and revalidation of garments. This facility is available to the exporters having annual past performance of not less than 25,000 pieces.

After the extension of facilities on a large scale, it is now for the industry to take the full advantage of these measures as well as other existing measures. Given the enterprise and dynamism of textiles industry, it is expected to go in for diversification of markets, enlarging and broadbasing the product range, increase in value-realisation, market intelligence, quality control, aggressive market and product promotion activities and give a new thrust to the textile exports. □

Essay Competition

To commemorate the Centenary of Swami Vivekananda's Bharat Parikrama and his address at the Parliament of Religion at Chicago, Yojana (English) is organising an essay competition open to its subscribers only. The theme of the essay is : Swamiji's Bharat Parikrama, the Chicago address and the message of Unity and Amity. The essay should be of about 1500-1600 words. The participants should mention their subscription number prominently. They should write on the top of the envelop "Essay Competition". There will be three prizes viz, First Prize : Rs. 1000/-, Second Prize : Rs. 800/- and Third Prize : Rs. 600/-. There will also be two consolation prizes of Rs. 400/- each. The prize winning essays will be published in September 1993 issue.

The last date for receipt of the entries is 31.7.1993.

Review Article

THIS book*, as the title indicates seeks to examine and explain how Communication and Research are closely linked. The scope of this well researched study is suitably defined in the Preface itself. The author points out at the very outset that communication is the most important word that typifies the Management Information System. That, he stresses, is the basic tool of management today.

Information, clearly, is the medium of exchange in the framework for communication. The book explains how information must be collected, analysed, studied and systematically organised to serve the targeted objective. And, information backed by data for analysis and interpretation, is the core of research. This is how research and communication are found closely interrelated.

The author is equipped with eminent academic antecedents essential for the work he has undertaken. Special study of the subject at home and abroad and senior positions held in the fields of Information and Personnel Management also provide him with a suitable background to deal with the subject in depth. Prof. Michael has had the additional advantage of having been a management trainer and consultant to various information-management organisations both at home and abroad in which capacity he could have a ring-side view of highly tangled situations in this field.

Students of information management are introduced to the subject through clearly enunciated explanations. The author has done well to point out that the research they would have to undertake in their tasks as business executives should be concerned not merely with data collection, classification and tabulation. The most important part of their work consists of providing inputs like ideas and intelligence. It also involves the updating of knowledge and information related to the subjects handled by the executive.

Prof. Michael has adopted a well-devised plan of contents by dividing them into two sections, one on Managerial Communication and the other on Managerial Research. This pattern helps the reader to easily understand and grasp the various ramifications and the complexities of the modern information system that acquires ever increasing sophistications with its expanding horizons.

On Managerial Communiation, the author elucidates the positive relation between cordial industrial relations and good communication facilities in any organisation. "Many industrial disputes, strifes, strikes and lock outs can be avoided", he says "with the help of a proper communication mechanism. Moreover, a good communication mechanism, by which workers get an opportunity to communicate with the management, enables them to come closer to management".

Besides the subject of Managerial Communication, the section includes highly instructive chapters on Oral Communication, Written Communication and Mass Communication. The chapter on Public Speaking, a subject usually slurred over by similar studies, should be welcomed by aspiring executives. Public speaking has come to be one of the most essential needs of every executive. An occasion may arise at any time when addressing a public audience would be necessary. It may be a trade meeting or an executive conclave when one is called upon to speak sometimes without prior notice. The chapter contains useful hints to equip an executive with the know-how and the skill to cope with all these situations. In this chapter, as in others, Prof. Michael incorporates the relevant illustrations and exercises designed to put business practitioners and the different strata of officials on their tracks.

The section on Managerial Research is elaborate and comprehensive with its fourteen chapters focussing on its various aspects-all harnessed to the specialised areas of operations. Each chapter in this section deals with the multi-dimensional facets of managerial and administrative decisions characteristic of the modern age that has witnessed a quantum jump in the size and scope of business organisations. Prof. Michael has drawn on his experience in explaining to his readers how research is a fact finding process which profoundly influenes business decisions.

The usefulness of this study is enhanced by the expertise that marks the explanations of the highly specialised modes of research for specific purposes like decision-making or for survey and for sampling. A number of diagrams, graphs, charts and tables make it easier for the reader to identify and assess the factors involved in each situation calling for managerial decisions.

This valuable hand-book on the subject also contains a chapter on report writing illustrating its various categories including journalistic both the print and electronic media. Thus, virtually, all the significant features of research and communication for the management system have received a comprehensive treatment in Prof. Michael's study. A valuable addition to management literature in our country, this volume is useful to mangement executives and students as well as to researchers of social sciences and the humanities. □

M. K. Dharma Raja

***Communication and Research for Management by V. P. Michael; Publishers : Himalaya Publishing House, Bombay-400004; PP : 370; Price : Rs. 175.**

Book Review

FOREIGN TECHNOLOGY IN PUBLIC ENTERPRISES : by Sunil Mani; Publishers : Oxford and IBH Publishing Company Pvt. Ltd. New Delhi. (1992); Pages : 254.

There are a number of studies in this area in developing countries. In the Indian context too, a few studies have appeared. However, the present study of Dr. Sunil Mani is a pioneering one in the sense that it is comprehensive and also a micro-level one pertaining to select Indian public sector enterprises The study begins with a general evaluation of the Government's policy and the consequent trend in the foreign collaboration approvals covering a period from 1948 through 1986. It also reveals the share of public sector units in the total number of collaborations that comes to about 5 per cent. Again, among the public sector units, those in the heavy, medium and light engineering industry have accounted for over one-half of the collaboration approvals. The largest importing units are, for example, BHEL, HMT, HEC, IPCL, SAIL, BEL, etc. Yet again, the collaborators are mainly from West Germany, the USA, the UK and Japan. They account for over 65 per cent of the number of collaborations in the public sector units.

The book then focusses on the cost of imported technology. The figures show that during a twelve-year period beginning from 1973-74, the public sector units accounted for about seven per cent of the collaboration approvals but shared about one-third of the direct costs, such as royalty, technical fees, etc. This means that the cost has been large. It would have been larger, had the indirect costs been easily quantifiable.

The other issue that the author highlights is concerning the efforts towards technological self-reliance. Such efforts are evident when the elasticity of the firm's R & D expenditure with respect to the amount that it spends on purchasing technology from abroad is greater than unity. Using the Reserve Bank figures, the author has found that on the whole, such efforts were evident. But developing his own data set, he is of the view that the above elasticity was greater than unity in heavy engineering units, but in case of chemical, fertiliser, electronic and some other units, it was less than unity.

Dr. Mani has examined his hypothesis more intensively in Part II of his book. In case of telecommunication equipment sector which is entirely the monopoly of the State, technology was imported in specific cases with little or no attention paid to its suitability to Indian conditions. But in general, this industry has one of the highest research intensities and much of the R & D inputs have gone towards adapting the imported technologies. Besides telecommunication equipment industry, two other cases, viz. HMT and ECIL have also been examined. The former has been dynamic and responsive to changes in the external environment within the minimum possible time. But, on the other hand, ECIL has failed to do so. This is why, it would not be wrong to say that any generalisation cannot be made about the assimilation of the imported technology in the public sector enterprises as a whole. Dr. Mani deserves praise for making a deeper probe into the subject, presenting the facts with sufficient empirical support and for a lucid explanation.

Vyuptakesh Sharan

MANAGERIAL ECONOMICS (ANALYSIS, PROBLEMS AND CASES) : By P.L. Mehta; Sultan Chand & Sons, 23, Daryaganj, New Delhi-110002, Pages 1003, Price Rs. 150.

Primarily, economics relates to the problem of choice. The problem of choice arises because limited means (resources) with alternative uses are to be utilized to satisfy ends (wants) which are unlimited and of varying degree of importance. Because of the scarcity of resources, we have to constantly match ends to means which is called 'economic activity'. The optimal economic activity is to maximise the attainment of unlimited ends given the scarce means.

In a firm, the manager also applies this problem of choice in his/her decision making. Decision making involves choice from among a set of alternatives to get the maximum returns from the scarce resources. For exmaple, a finance manger chooses the sources and uses of funds. Similarly, production manager chooses the product-mix. In

other words, the manager makes the use of various economic laws/rules in his/her decision making or management function. Managerial economics is, therefore, considered as an integration of economic theory with business practices for facilitating decision making. Such application helps the manager take an optimal decision from among a set of alternative decisions. In view of increasing complexities in the business parctices, the application of economic theory in the business decision making has gained increasing relevance and significance As a result, managerial economics has now emerged as a separate full fledged branch of economics in the sphere of business and industry. This, in turn, gave emergence to the need for a comprehensive book on this vital subject, i.e. managerial economics of contemporary relevance.

The present book has 34 chapters and 2 appendices. Of special interest is Dr. Mehta's self-learner style. Every chapter includes a **Test Your Understanding** at the end The book may well be prescribed as a text book for the paper on managerial economics of all Indian Universities and management institutes

S S Khanka

THE INDIAN ADMINISTRATIVE YEAR BOOK by S. R. Maheshwari; Published by Concept Publishing Company A/15-16, Commercial Block, Mohan Garden, New Delhi-110059; Pages : 290; Price : Rs. 500.

A student of Public Administration needs not only the knowledge of the current administrative system, but also its history and evolution. This book serves the purpose well. The present work has been completed under the auspices of the Centre for Political and Administrative studies.

The book may broadly be divided into two parts. The first part comprises history and evolution; second part administrative events relating to the calendar year 1990. There are 9 chapters with index at the end. In this book while the author has mainly produced the facts, his approach has been critical also wherever he has deemed it necessary. For example in chapter 7 titled Dominant Themes and Concerns of the year 1990, he has critically analysed the issues viz. 'The Minority Government, Postings and Transfer of Senior Personnel, 'Coalition Government' Open Government, 'Parasar Bharati' etc.

The book may prove to be a good and useful reference book for the policy makers and planners as also for the students of public administration and political science

V N Gupta

MRTP LAW : PRINCIPLES, PROVISIONS AND CASES by Dr. D.P.S. Verma 1992 Edition; Manas Publications, Delhi ; Pages 279; Price Rs. 110.

The book under review is a comprehensive coverage of all facets of this fast growing area of law. The striking features of this book are : each topic is made self-contained; all amendments in the MRTP (Monopolies and Restrictive Trade Practices) Act, MRTP Rules and MRTP Commission Regulations effected upto October 2, 1992 are incorporated, latest decided cases on the subject presented to supplement and elaborate the statutory provisions and an appraisal of the working of the MRTP Commission in recent years. The approach adopted is to cater to the requirements of related disciplines of law, commerce, business administration, business economics and consumer protection.

The author has rightly observed that MRTP law has always exerted an effective impact on the marketing practices of business firms in India. Its presence has regularly been felt even in non-project and service organisations. This law influence almost every area of business, viz., production, pricing, distribution, advertising, sales promotion, financing, investment, purchasing packaging and transfer of technical know-how.

By virtue of the fact that the author had been associated with MRTP Commission itself besides his diverse experience of writing, teaching, conducting and guiding research in the area of restrictive and unfair trade practices and consumer protection, in its nine chapters, the author has consolidated up-to-date information on the working of the major enforcement machinery and the administration of MRTP Act.

The role of Government and consumers is highlighted in Chapter 8. The author has sought to analyse the over-riding powers of the Central Government under the MRTP Act and also gives a brief description of the limited role assigned to the State Governments and the rights of consumers and the voluntary organisation. Recently, there has been a spurt in the number of complaints received from the consumers from all parts of the country. The consumer movement in India is in its infancy. It needs to be mobilised. The fact that the book bears all the essential ingredients of the emerging MRTP Law will attract students, researchers and people concerned with this faculty.

S.D Padmanabhan

TRANSFER OF TECHNOLOGY TO SMALL FARMERS By S.N. Singh, K. Vijayaraghavan & T. Haque; Concept Publishing Company, New Delhi-110 059, 1991; Pages : 120.

The average per capita food production index for India during 1988-89 was 113 (World Bank Report 1991, Pp-210). This index is much

higher than many other developing countries. Further, considering 1950 as the base, it has been found that during a span of 39 years India's food grain production increased 3.35 times. Obviously this achievement should be considered as a result of Green Revolution. But in this context, it should be noted that Green Revolution was mainly confined to irrigated areas. Mainly big farmers were benefited by Green Revolution. Thus the development strategies of the past have failed to distribute the fruits of agricultural development to vast majority of small farmers. On the contrary, 58.8% of the agricultural population of developing countries belongs to the group of small farmers.

It is well known that Green Revolution was nothing but introduction of new technologies in agriculture. It comprises biological, chemical, mechanical and emerging agricultural technologies. Again, biological technologies indicate development of improved varieties and hybrids of various crops. Similarly, chemical technology means use of chemical fertilisers, pesticides, fungicides, hormones, herbicides, etc. Introduction of mechanical technology in agriculture explains launching of new mechanisms replacing traditional equipment. Finally, emerging agricultural technologies speak for a new comprehensive approach towards agriculture. It includes integrated past management, integrated nutrient supply, scientific water management, proper soil health care, farming systems based on integrated principles of ecology and economics, energy efficient farm machinary and equipment, use of solar energy and integrated post-harvest technology.

The authors have taken care of all these factors for analysing the problems of transforming technology to small farmers. The analysis is basically based on India, but when needed it has referred to other developing countries as well. The credit patterns of China, Korea and India should be considered as a new dimension in such types of study. Actually the success of the book lies not only in the analysis, but the methodology of analysis has made the book more attractive. An attempt has been made to analyse the constraints of transfering technology taking various social, economic and administrative factors into account. The bibliography and index have made the book more worthy.

A. Ray

DARJEELING : A FAVOURED RETREAT : By Jahar Sen; Indus Publishing Co. New Delhi; PP. 120; Price Rs. 120.

Darjeeling has not only been famous for its beautiful surroundings within the country but also outside. The book under review gives a synoptic view of Darjeeling district. It contains four small chapters along with a select bibliography, an index and five appendices.

The central theme of the book is the historical perspective along with cultural patterns of the people living in Darjeeling district. The book traces the development from 1774. Since 1860, there has been rapid growth of the district. Chapter II discusses trade. The study brings to light the trade relations with Nepal, Tibet, Sikkim and Bhutan. The third aspect of the study is the strategic considerations which are of vital importance for adjacent countries. The last chapter deals with the new orientation of Darjeeling.

Dr. Badar A. Iqbal

AGRICULTURAL MARKETING AND CREDIT : By K. Subbarao, (Research in Economics, Second Survey : Monograph No. 2), published by Indian Council of Social Science Research (ICSSR), 35, Ferozeshah Road, New Delhi-110001, 1989, pp. viii + 59.

This monograph is published under the Second Survey of Research in Economics sponsored by the Indian Council of Social Science Research (ICSSR). Late Prof. Sukhamoy Chakravarty in his capacity as Chairman of the ICSSR has observed in his foreword that the Second Survey of Research in Economics is in a way substantially different from the first. Most of the contributions in the first survey had a significant bibliographic orientation and covered relevant literature generated within a specific period of time i.e., upto 1970. The form has been changed in the Second Survey which seeks to elucidate and enlarge the analytical issues pertaining to a major developmental theme. While the analysis is not limited to any specific time period, greater attention has been given to recent writings, specially in India. The monograph in question presents a survey of existing theoretical formulation and empirical work in the area of agricultural marketing and credit. Prof. K. Subbarao deserves praise for surveying the literature on the agricultural marketing and credit in a very commendable manner.

Research effort in the area of agricultural marketing since the early 1970s was directed to questioning the long held notion that in India, the functioning of grains markets was operationally inefficient and exploitative in character. The impact of Government intervention programme on the efficiency with which the system is able to adjust to the sharp increases in surpluses and the impediments to such adjustment also received considerable attention. While analysing these issues, several methodological innovations were also introduced.

After a brief introduction, the monograph begins with a discussion in Section 2 of the changing organisational characteristics of the agricultural marketing system in India. Section 3 reviews the analytical advances in the measurement of technical and economic efficiency of the marketing system, and evaluates

the relative merits of alternative methodologies, giving the data base. Agricultural marketing problems of a small farmers are discussed in Section 4. Section 5 is devoted to an analysis of the role of the Government in agricultural marketing including state trading in foodgrains and the impact of various public intervention policies on the welfare of producers and consumers, and on the overall efficiency of the system. Throughout the survey, the focus is on a review of empirical evidence pertaining to foodgrain crops "rice and wheat" and not on the non-food (cash) crops.

In the ultimate analysis, one should raise the question : what role marketing reforms played in improving producers prices without hurting the consumers via reduction in unit cost of marketing ? How far could marketing reforms solve the problems of small farmers ? Their problems emanate essentially from their dependence on traders for credit, which puts them in highly unequal trading relationship with the buyers of their produce. Their marketing problems have to be traced to their structural condition, and to their need for immediate cash for meeting critical consumption requirements. Prof. Subbarao has emphasised that marketing reforms alone are unlikely to improve their bargaining power. The reforms have to be combined with a structural reforms and credit reforms that enable them to improve their resource base. There is also a need for innovative ideas in the marketing reforms such as establishing multi-purpose co-operatives restricting membership only to small and marginal farmers, recognising gender-specific roles in agricultural marketing, so as to improve women labour participation.

PART II

Rural Credit

Providing adequate and timely "institutional" credit to a "small" farmers constitute one of the most difficult problems, especially in the context of technological change. In this monograph the problem of rural credit has been focussed on the review of the recent changes in the institutional credit arrangements with particular reference to equity. This is followed by discussion of analytical issues relating to the functioning of informal credit markets and the phenomenon of interlocking of markets.

The two most important questions raised in the analysis of institutional finance for agriculture relate to the alleged : (i) inter-size class bias arising from large farmers cornering a major chunk of co-operative and commercial bank credit, and (ii) inter-regional bias, arising from the relatively more prosperous States accounting for a substantial amount of institutional credit. These issues have been briefly discussed in the monograph. One of the major problems faced by all institutional financing agencies is the problem of overdues.

The institutional credit system as it evolved in India enables one to draw some broad conclusions : (i) effective access to the institutional credit for target groups continues to be limited, even though some improvement did take place since the mid-1970s; *(ii)* regional inequality in the access of institutional credit has presumably worsened; (iii) viability of credit institutions, both short and long term, is seriously threatened by the problem of overdues; (iv) to the extent the problem of overdues exists even among large farmers in the prosperous 'green revolution' belt, wilful default especially by large farmers has emerged as an intractable problem.

It must be noted that the expectation that institutional credit agencies will act as catalysts of development has not been borne out by the recent experience. Mere distribution of loans does not initiate the process of development. On the contrary, the abuse of credit institutions especially by the rich and powerful contributed to the locking up of funds which would otherwise have been available for development. Furthermore, to the extent these funds are difficult to recover, institutional credit flows have presumably worsened equity in rural India.

There is no doubt that the dependence of farmers, both small and large on traditional moneylenders has declined especially in the north-western and southern States. But such dependence continues in the eastern India.

Studies of informal credit market, suggest that it is extremely important to understand the nature of dependence of poor household and the social character of the control mechanism exercised by the lenders so that the limits to a particular policy can be better understood. But interface between the dependence and informal credit transactions is too strong to be broken merely by the expansion of rural commercial banking outlets. Informal credit markets can be better understood if the changing interface between social and economic infrastructure of the region and the emerging technological changes are also interwoven into the analysis.

The book under review is a very welcome addition to the literature on agricultural marketing and credit. It amply points out the areas of further research and also the areas on which empirical studies have been made. The book also contains 11 tables and a select bibliography. With its unique coverage, this lucidly written monograph would be invaluable to researchers and students of agricultural marketing and credit. □

Shrawan Kumar Singh

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Union Budget 1993-94

THE General Budget for 1993-94, presented by the Finance Minister Dr. Manmohan Singh to Parliament, has proposed substantial reduction in customs, excise and import duties, particularly for items of mass consumption Relief has been given to a large number of consumer items to protect the common people from inflation.

In addition to full exemption for coffee and tea and reduction of excise duty on vanaspati by Rs. 400 per tonne reduction has been granted on air-cooler, electric fans, domestic eletrical appliances, dry cell batteries, printing and writing ink, radio sets, tooth powder, biscuits, noodles and roasted cereals, plastic moulded luggage and matresses and varying items using rubber. Excise duty has also been reduced on a number of capital goods and instruments at a uniform rate of 10 per cent. For the power sector 5 per cent reduction has been proposed

To help automobile, television, refrigeration and airconditioning industries to fight recession, significant relief has been proposed by reducing excise duties. Commercial vehicles not using petrol are to pay eight per cent less excise The duty on chassis of these vehicles have also been decreased to fifteen per cent whereas the duty on building the chassis of buses and similar passenger vehicles has been fully exempted. The excise on three wheelers and motor cars has also been reduced by eight and fifteen per cent respectively. The colour T.V. sets will be charged Rs 675 to Rs. 2,585 less excise duty. The duty on refrigerators and airconditioners will also come down from Rs. 175 to Rs. 2250 and from Rs. 6,800 to Rs. 15,100 respectively per piece. Excise duty on bulk plastic resins has also been reduced by eleven per cent.

The existing duty structure on metals has been sought to be rationalised. The ad valorem rates on ferrous metals will have two slabs at 12.5 and 15 per cent. The present duty rates on aluminium are to be replaced by one uniform rate of twentyfive per cent. Instead of varying rates for non-ferrous metals like copper, zinc and lead a uniform duty of fifteen per cent has been proposed.

The excise duty on plywood used in paper making is lowered by 14.5 per cent so that non-conventional raw materials are increasingly used for manufacture of paper. Excise duty on match boxes are also reduced and the present concessions are to be restricted to registered cooperative societies or those recognised by KVIC or the State KVIB. The duty on talcum powder, shampoos, face and shaving cream is also to come down by 50.75 per cent. However, the rates of excise duties on tyres, tubes and flaps are to marginally go up, as also the duty on molases by about twenty-eight rupees per tonne.

The Finance Minister has proposed to enhance the limit for exemption on registration of small scale units from 7.5 lakh to 10 lakh rupees. He said, by accepting certain recommendations of the Estimates Committee and Public Accounts Committee, it has been possible to raise the duty exemption limit of all units producing goods worth upto Rs. 30 lakh.

He further said that small units are to receive MODVAT credit, only on the basis of duty actually paid.

Concessions

Agriculture, Textile and Health sectors have received both customs and excise duty concessions. Import duty on items of machinery used for agriculture, horticulture, forestry and poultry farming has been reduced by 30 per ent. Import duty on some specified items of export in textiles, leather, marine products and gems and jewellery industries have been reduced to 25 per cent.

The import duty on specified bulk drugs has been drastically reduced to 25 per cent. A uniform rate of 50 per cent duty is proposed on specified drug intermediates. In respect of homoeopathic medicines, the duty is further reduced to 15 per cent. Full exemption has been given to specified non-electronic life saving medical equipment to accelerate indigenous production of medical instruments.

Relating to indirect taxes, import duty on projects and general machinery has been reduced to 35 per cent from the present 55 per cent. Projects in certain priority sectors like coal mining and petroleum refinery will now have to pay only 25 per cent duty. To stimulate competitive spirit among the domestic capital goods industry, a reduction of 25 per cent is allowed on components of general machinery which is presently taxed at either 40 per cent or 35 per cent.

Various types of machine tools in the Capital goods sector are now proposed to be brought under three duty rate slots of 40, 60 and 80 per

cent. A uniform rate of 40 per cent will be levied on hand operated tools used by artisans and skilled workers.

Lower merged duty of customs at 5 per cent ad valorem for the ship breaking industry has been announced. The electronic industry will attract a uniform rate of 25 per cent of duty. The import duty on specified raw materials for the manufacture of optical fibre cables is reduced to 20 per cent to modernise and boost the telecom sector.

For the Film Industry, duties on jumbo rolls of cine-positive films have been reduced to 20 per cent and on finished film rolls to 40 per cent and on negative cine films to 25 per cent. Import duty on raw materials and items for production of non-conventional energy has been reduced by 15 to 20 percentage points.

Dr. Manmohan Singh announced full exemption from import duty for Jamdanee saris imported from Bangladesh. Accredited journalists will enjoy a one time facility to import specialised equipment with no tax upto Rs. 60,000. He also said, general baggage rate has been further reduced to 150 per cent. The export duty on iron ore and unpolished granite is withdrawn.

Priority Area

The final priority is the exports, which have to be made a national endeavour, so that the country can move fast to manage the balance of payments withouts financing from abroad. The expenditure and tax proposals in the coming year's budget have been tailored to meet these objectives.

Admitting that the securities scam has revealed weaknesses in the supervisory system of banks, Dr. Singh said, as per the recommendations of the Narasimham Committee the Reserve Bank has decided to strengthen bank supervision within it. The Government aims to reduce the Statutory Liquidity Ratio, SLR, further from an effective average level of about 36 per cent at present to about 25 per cent over the next three years. He justified the proposal for reducing the interest rates of banks by saying that the rate of inflation has also come down. Lowering of interest rates, he said, will help the economic recovery in the coming year.

The flow of rural credit from the institutions is expected to rise by about Rs. 3,000 crore in the coming year, increasing by 20 per cent. The present strategy of withdrawing protection from the industry and integrating the economy with the global economy, will certainly help agriculture, as it will moderate the high industrial prices, which farmers have to pay. This will also bring a more competitive exchange rate to make agricultural and agro-based exports more profitable. Following these norms, banks will have to provide over. Rs. 10,000 crore for taking care of the bad and doubtful advanes in their portfolios.

Economic Scenario

Outlining the present economic scenario, the Finance Minister said, the annual rate of inflation has come down from as much as 17 per cent in August 1991 to below 7 per cent now. The growth of the economy, which declined to 1.2 per cent in 1991-92, is expected to be around 4 per cent in the current financial year. The fiscal deficit has also come down from 8.4 per cent of the GDP in 1990-91 to about 5 per cent in the current year.

Production is beginning to recover and fear of being swamped by imports following liberalisation have proved to be exaggerated. Dr. Singh said, the market exchange rate of the rupee has remained relatively stable and the investment climate has improved considerably since Augus 1991, the approvals given for foreign investment proposals upto the end of January this year amount to an equity investment of 2 3 billion US dollars.

Dr. Singh, however, admitted that the fiscal imbalances are still large, and the economy is still vulnerable to external shocks and loss of confidence. He said, the riots and disturbances in December and January have disrupted domestic production and exports and cast doubts on Government's determination to go ahead with the economic reforms.

Outlining the priorities of the economic policy, Dr. Singh announced, the fiscal corrections should be continued so that the inflationary trends are curbed and the deficit of the Central State Governments are further reduced. Fiscal manoeuvre gained by restraining expenditure has to be used to boost development expenditure in the coming year, particularly for alleviating poverty and development of the villages and of vital social services like education and health.

Import Payment

All imports will henceforth be paid also at the market rate. The details of the new system will be notified separately by the Reserve Bank of India. The Finance Minister announced an increased allocation which is to go up from Rs. 17,500 crore in the current year to Rs. 19,180 crore in the current year. The Government will keep its commitment on Farm Loan Waiver Scheme on which the expenditure will be R. 520 crore. Food subsidies will account for Rs. 3,000 crore and the Government will try to keep the burden of food subsidy at a reasonable level. No separate provision has been made for additional dearness allowance which may become payable next year.

To protect the viability and the financial health of the Banking system, a provision has been made in the budget for a large capital contribution of Rs. 5,700 crore to the nationalised banks next year to meet the gap created by the application of

the first stage of the norms. The State Bank of India as well as other nationalised banks which are in a position to bear the additional capital needs for rural development will be allowed access in the capital market to raise fresh equity to meet their shortfall over the next three years. This will help the banks to expand lending, but the Government will continue to retain majority ownership and therefore effective control of the public sector bank. As the legal process for realising bank dues is tortuous and time-consuming through courts, special tribunals will be set up to expedite legal action by the banks and a legislation to this effect will be brought next year.

The Finance Minister has proposed to appoint a high-power Committee to go into the need for reforms in the insurance industry to make it more competitive; the Committee is to submit its recommendations within six months. Under the dual exchange rate regime introduced last year, import licensing was eliminated on many capital goods, raw materials, intermediates and components, which made them freely importable against foreign exchange bought in the market. The system has worked well and the market exchange rate has been remarkably stable, but the dual rate is hurting exporters and other foreign exchange earners. Responding to many exporters, the Finance Minister expressed his desire to unify the exchange rate and still manage the balance of payments with reasonable stability in the rate. It is for this reason that the dual rate arrangement is to be eliminated and all exporters and other foreign exchange earners will henceforth be allowed to convert their entire earning at the market rate.

(Courtesy : AIR)

HIGHLIGHTS

Massive reduction in customs, excise and import duties, particularly on items of mass consumption.

Income tax exemption ceiling remains the same; standard deduction raised to Rs. Fifteen thousand for the salaried class.

Twelve per cent surcharge on personal income above Rs. one lakh is to stay for one more year.

Five year tax holiday proposed for profits and gains of new power generation and distribution unit.

Coffee and tea fully exempted from excise and duty on vanaspati reduced.

Color T.V. sets, refrigerators and airconditioners to cost less.

Import Duty on machinery for agriculture, horticulture, forestry, poultry keeping and certain pesticides reduced.

Excise on polyester and nylon yarns lowered and import duty on specified bulk drugs drastically reduced.

Defence outlay increased to Rs. 19,180 crore, a rise by Rs. 1,680 crore than that of the current year.

The bank rate is lowered by one per cent and the maximum interest on deposit reduced from twelve to eleven per cent.

Outlay on education is raised by over thirtyseven per cent to enlarge primary education and adult literacy.

Dual exchange rate regime eliminated.

Exporters and other foreign exchange earners permitted to convert cent per cent earnings at market rates.

Special tribunals to be set up to expedite legal action by banks to enforce recoveries.

The net budget deficit is estimated at Rs. 4,314 crore.

What They Say

The Hindu

THE Union Finance Minister, Dr. Manmohan Singh, must be congratulated for presenting a budget that pushes the economy firmly forward on the road of reform, removing the doubts and uncertainties created by the political problems of the last two months. If the unprecedented give-away of Rs. 4,522 crores in customs and excise duties and Rs. 300 crores in direct taxes should bring cheer to the nation as a whole, it can hardly be characterised as populist. Indeed, it addresses squarely the problems the economy is facing and represents an imaginative and politically sensitive attempt to take the economy forward after the restrictive approach of the last two years. Gloomy predictions that the Government would obstinately proceed along the IMF-ordained route of deficit reduction, ignoring nationally important and socially sensitive sectors and letting anti-poverty programmes fall by the wayside have been proved false. After the correction of the last two years, the Finance Minister has had a great deal of room to manoeuvre, even while enlarging the Central Plan and a stepping up allocations for agriculture, rural development, anti-poverty programmes and defence.

At the end of a seemingly impossible exercise, the budget deficit that emerges is just Rs 4,314 crores, the lowest in a decade. Even the broader measure of the budget's impact on the monetory system, the fiscal deficit, is around 4.5 per cent of the GDP which is within tolerable limits, considering that it had gone up to 8.4 per cent in 1990-91. Had the Government pursued the task of fiscal deficit cutting single-mindedly, it could perhaps have been held well below 4 per cent but it has opted for a bolder approach to stimulate an economy important sections of which are facing recessionary trends. It has for long been recognised that customs duties are unconscionably high and, through pushing up investment and productionn costs, have contributed substantially towards creating a high cost economy.

A surprising feature of the budget is that it has left the direct tax structure virtually untouched except for marginal changes. One promise made last year which the Finance Minister has not kept is in the area of corporate tax reform. A reduction in the corporate tax rate as held out last year and some form of investment allowance were widely anticipated and it was the absence of these elements no doubt that made the stock markets fall. Even the expected gesture to the middle class in the form of a higher income tax exemption limit has not materialised, though the standard deduction for salary earners has been raised marginally. Indeed the task of fiscal reform remains incomplete and the Government has a long way to go before it can claim to have in place a reasonable and stable direct tax structure that would endure and serve the needs of the economy.

The Times of India

Dr. Manmohan Singh's third budget is a truly remarkable exercise in achieving the seemingly irreconciliable objectives of boosting economic growth and employment and advancing towards the main goals of the ongoing reform programme, namely, reducing the fiscal and foreign exchange deficits and curbing inflation. What is more, by further liberalising imports and making the rupee fully convertible on the trade account, the finance minister has erased doubts about the future of reforms. Indeed, he has ensured India' integration in the world economy and its emergence in due course as a trading nation of consequence in the global market.

A convertible rupee, when seen together with the overall budgetary package, will help reduce the foreign exchange deficits in two ways. First, it will make exports more attractive as every dollar earned will yield more rupees. Secondly, convertibility will enhance the inflow of capital into India. Non-resident Indians will now have the incentive to send their remittances through official channels rather than through the black market *havala* route. There is also the possibility that those who have stashed away money abroad may bring it back as foreign exchange into the country. And now that the government has signed the Multilateral Investment Guarantee Agency convention, convertibility will encourage a higher inflow of foreign investment as investors abroad will not only find India a much better business destination than it was but will have the confidence that the country will not stray from the course of reforms.

The Economic Times

It looks like an election budget, but isn't. Dr.

Manmohan Singh has slashed taxes in a veritable cascade unrivalled in the history of India. Not even in past election years have finance ministers given away anything like the Rs. 4,522 crore of customs and excise duty cuts announced by Dr. Singh.

Unlike other finance ministers, Dr. Singh has not given lollipops to voters by being fiscally profligate. On the contrary, he plans to reduce the fical deficit by around 0.5 per cent of GDP, the third successive year of fiscal contraction. So his tax cuts do not represent pre-election politiking. They carry the very different lesson that good economics can be good politics.

The Budget marks a watershed in the reform process. Dr. Singh's first two budgets were fire-fighting ones, stressing the taming of inflation and the fiscal deficit. Structural reforms was limited in this early phase.

This first phase of the reforms is over, now that inflation has been controlled and the foreign exchange reserves are at a healthy level. The stage is now set for faster growth in 1993-94, followed by a boom in the next few years After stepping on the brakes for two budgets, Dr. Singh is now stepping on the accelerator This explains his multiple cuts in customs and excise duty, which should stimulate both investment a consumer spending. These tax cuts go a fair way in the general direction of the Chelliah Committee recommendations.

Many people are stunned that he has managed to increase the Central Plan outlay by 32 per cent, unify the exchange rate, raise rural development spending (mainly antipoverty schemes) by 62 per cent. He has combined this with huge tax giveaways, and yet curbed the fiscal deficit. Is this witchcraft ? Or perhaps statistical legerdemain ? No, the miracle has apparently been achieved by a mixture of luck and good management.

Dr. Singh has failed dismally in one respect. The revenue deficit is going to balloon to Rs. 17,630 crore next year, against the budgeted Rs. 13,882 crore for 1992-93. He is wrong to borrow money to finance revenue deficit. He would have been well advised to limit his tax cuts to say Rs. 3,000 crore in order to get the revenue deficit down.

Indian Express

The sop of an increase in the standard deduction (for personal income tax payers) has not mitigated the disappointment over the absence of a hike in the tax exemption limit. Hopes raised by the Chelliah Committee's recemmendation to raise the taxable limit attracting the surcharge too have been dashed. What is ominous is the Finance Minister's admission that expanding the tax base is not the easy task it had been assumed to be by the mandarins of the North Block. Dr. Manmohan Singh has said as much in declining to implement the Challiah committee's recommendation to bring down the corporate tax rate. Tax reform has been put on the back burner. The transfer of resources from the Government to the private sector, the key to market-led growth, has to await more propitious times.

The modest incentives to exports the budget provide will not enlarge the supply of foreign currency, the demand for which will sheet up as a consequence of duty reliefs. The rupee, now made convertible on the current account, will slide, specially if public investment rises as touted by the budget. Since the convertible rupee will have to be managed with borrowings from the IMF, public investment will have to be held down to avert undue devaluation. The budget for 1993-94 is a sleight of Hand.

The Statesman

Except for the initial uphoria of a unified exchange rate-undoubtedly the focal point of Dr. Manmohan Singh's latest exercise, in a desperate bid to push up exports-the Union budget for 1993-94 is at best lack-lustre and at worst a gamble. To be fair to the Finance Minister, with the Government having run the fortunes of this resource-rich country into the ground, there was little apart from some arithmetical tinkering that he could do and even that manoeuvrability was virtually sacrificed when he was required to give away an unprecedented Rs. 4,500 crores by way of Excise and Customs reliefs. This again was a part of his promise to the institutional lenders.

He would do well to inject an element of realism into North Block by looking at China instead. An equally populous country with similar prolems has attained a 13 per cent growth in its gross domestic product and in the process attracted global invetments worth $ 12 billion. India seeks such funds in borrowings.

The Hindustan Times

Finance Minister Manmohan Singh's Central Budget for 1993-93 exudes a high degree of confidence which justifies his claim that the nation has left the phase of crissis management behind and is now set to move ahead. The indicaters of the turn around are several. The success in correcting fiscal imbalance is evident not only in bringing down the fiscal deficit to 5 per cent of the GDP, but in pegging the coming year's budget deficit at no more than Rs. 4314 crore which in percentage terms should turn out to be less than 5 per cent. This achievement has been attended by a decline in the inflation rate. Also a leash on profligacy has enabled the Government to substantially raise the outlays for key growth sectors like industry and agriculture as well as the social setors such as rural development, health and family welfare and human resource development.

Contd.....on page 29

Highlights

* No increase in fares for Second Class ordinary up to a distance of 100 kilometres. The fare will go up by 10% for distances beyond 100 kilometres.

* The freight rates for all goods proposed to be raised by 10% for distances upto 500 km and 12% for those beyond.

* Fares for AC First Class, First Class, AC Sleeper, AC Chair Car and Second Class Mail/Express to be raised by 10% for all distances.

* A new class of travel designated as 'Sleeper Class' to be introduced. The fare of this Class will be 25% higher than that of Ordinary/Mail/Express Second Class but no separate sleeper surcharge to be covered. The minimum chargeable distance for this Class to be kept at 200 kilometres.

* Fares for Second Class Monthly Season Ticket to be raised.

* Insurance Scheme to cover cases of deaths/injuries as a result of train accidents, terrorist attacks, bomb blasts, etc. to be launched.

* Railways to carry 20 million tonnes more of revenue earning traffic over the level of 350 million tonnes expected in the current year.

* Tariff proposals which come into effect from 1.4.93 are expected to yield Rs. 1,848 cr. in the year 1993-94.

* A new Capital Fund being set up. It will be financed from the internally generated resources and will meet part of the Plan requirements.

* Railways expect to carry 370 million tonnes of originating revenue earning traffic in 1993-94.

* Plan size fixed at Rs. 6,500 cr. with a budgetary support of Rs. 960 cr. It is the first time that more than 70% of the Plan outlay is being funded by the resources generated internally after payment of dividend in full.

* Gauge conversion target fixed at 1,600 kilometres. Rs. 810 crore allocated for gauge converion.

Economic Survey : 1992-93

THE latest CSO estimates for 1991-92 suggest that economic growth was only 1.2 per cent, significantly lower than the growth of 2.5 per cent projected in last year's *Economic Survey* (Table I) The prospects for the current year are distinctly better and growth of GDP is expected to exceed four per cent in 1992-93.

Aftr a slightly delayed start, the monsoon turned out to be very good in all areas other than the middle Gangetic plain. The kharif food grain harvest is likely to show a rise of as much as eight per cent. The coarse grain crop, estimated at 34.7 million tonnes is almost 32 per cent higher than 26.3 million tonnes in 1991-92. The sugarcane crop lacked rain in the North at a crucial time and the total crop is likely to be 7.7 per cent lower at 230 million tonnes. But the cotton crop, at 11.7 million bales, is excellent. The kharif oilseed crop is estimated to be 10.5 million tonnes, 17.7 per cent above last year and equal to the record crop of 1988-89 With another bumper harvest of mustard expected in the coming rabi, the supplies of edible oils are likely to be very comfortable. The agricultural situation this year is broadly satisfactory and even with a modest growth in rabi crop, agricultural output could be five per cent higher than in 1991-92.

In contrast, the industrial sector has continued to suffer from recessionary conditions through 1992-93, though performance is better than in 1991-92. Production in the period April-October 1992 shows a growth of 3.8 per cent. This is better than the marginal decline recorded in the same period of 1991-92, but it is well below the normal trend growth of industry. Industrial production in 1992-93 has been slow to recover for a number of reasons. Import restrictions which accounted for the poor performance in 1991-92 were completely removed by the end of 1991-92 when the new Liberalised Exchange Rate Management System was introduced. However, while quantitative restrictions on imports were not a constraining factor in 1992-93, the high cost of imported inputs, reflecting changes in the exchange rate, probably acted as a restraining factor in import-intensive industries. The new exchange rate will, however, help exports, and the resulting export stimulus would stimulate industrial production in more export-oriented sectors. However the export response will come only with a lag.

There is evidence that industrial growth is accelerating. The moving average annual index of industrial production was stagnant 7 months earlier and now shows a growth rate of 2.2 per cent in the year ending October 1992. The extent of disruption in December and January is not yet easily quantified but if the industrial recovery continues at the pace observed in recent months, the industrial growth rate for 1992-93 as a whole could reach four per cent.

Services account for an important proportion of GDP and have shown steady growth. In fact, the growth of 1.2 per cent in GDP in 1991-92 when both agriculture and industry showed negative growth was entirely accounted for by the growth in services. And this growth in services was real. Apart from the normal growth in services owing to the Government sector, there was a real increase in the output of important measurable services in 1991-92. This growth in road and rail transport, telephone connections, cargo handled and air passengers continues in 1992-93.

An important feature of the economic situation in the second half of 1992-93 has been the revival of investment activity. The total term loans sanctioned by the term lending institutions in the first quarter of 1992-93 had shown very little growth, but the position improved dramatically thereafter. For the period April-December 1992 the term loans sanctioned by the all India Financial Institutions show a growth of 70 per cent while disbursements shown a growth of 47 per cent.

Balance Of Payments

The balance of payments position, which had reached a point of near collapse in June 1991, slowly stabilised during the course of 1991-92. Although new policies to deal with the situation were quickly formulated by the new Government and implemented within a few months the external payments situation took time to stabilise primarily because it had been allowed to deteriorate to a state of near bankruptcy in June 1991. Foreign currency reserves had declined to $ 1.1 billion despite heavy borrowing from the IMF in 1990-91 and a substantial part of this was held in illiquid deposits which could not have been easily mobilised if needed.

TABLE 1

Key Indicators

	1988-89	1989-90	1990-91	1991-92 (P)	1992-93 (P)	1988-89	1989-90	1990-91 (P)	1991-92 (P)	1992-93 (P)
	Absolute Values					**Per cent Change over Previous Year**				
Gross national product @ @ (Rs. thousand crore)										
At current prices	349.0	400.1	465.8	535 1 @	610.0 *	19.4	14 6	16 4	14 9 @	14 0 *
At 1980-81 prices	185 7	196 1	206 3	209 3 @	218.2 $	10.5	5 6	5 2	1 4 @	4.2 $
Gross domestic product (Rs. thousand crore)										
At curreant prices	396.6	454 0	530 9	609 5	694 8 *	19 0	14.5	16 9	14.8	14 0 *
At 1980-81 prices @ @	188 9	199.5	209.8	212.3 @	221 2 $	10.9	5 6	5 2	1.2 @	4 2 $
Agricultural production (1)	183 2 (P)	187 0 (P)	192 0 (P)	186 6 (P)	195 9 *	21 0	2 1	2 7	-2 8	5 0 *
Foodgrain production (million tonnes)	169 9	171 0	176 4	167 1	176 7 *	21.0	0 6	3 2	-5.3	5.7 *
Industrial production (2)	180 9	196 4	212 6	212 4	208 3 (3)	8 7	8.6	8.3	-0 1	3.8 (3)
Electricity generated (TWH)	221 4	245 4	264 6	286 7	221 3 (8)	9 5	10 8	7 8	8 4	4 6 (8)
Wholesale price index (4)	156 9	171 1	191 8	217 8	231 0 (5)	5 7	9 1	12 1	13 6	7.8 (5)
Consumer price index for industrial workers (6)	166 0	177 0	201 0	229 0	244 0 (7)	8 5	6 6	13 6	13 9	8 4 (7)
Money supply (M3) (Rs thousand crore)	193 5	231 0	265 8	315 1	350.2 (8)	17 8	19 4	15 1	18 5	11 2 (8)
Imports at current prices										
(Rs crore)	28235	35416	43193	47851	47480 (8)	26 9	25 4	22 0	10 8	38 7 (8)
(US $ million)	19497	21272	24072	19411	16630 (8)	13.6	9 1	13 2	-19 4	16 5 (8)
Exports at current prices										
(Rs crore)	20232	27681	32553	44042	37329 (8)	29 1	36 8	17 6	35 3	23 1 (8)
(US $ million)	13970	16626	18142	17866	13075 (8)	15 6	19 0	9 1	-1.5	3.4 (8)
Foreign currency assets										
(Rs crore)	6605	5787	4388	14578	13688 (9)	-9 4	-12 4	-24 2	232 2	40 2 (9)
(US $ million)	4226	3368	2236	5631	5237 (9)	-24.8	-20 3	-33 6	151.8	38 8 (9)
Exchange rate (Rs/US$) +	14.5	16.6	17 9	24 5	25 9 (10)	10 5	13 0	7 2	26 7	6.8 (10)
Market rate (Rs/US$) # +					30 4 (10)					20 3 (10)

* Anticipated (P) Provisional @ Quick Estimates @ @ At factor cost $ Advance Estimates

+ Per cent change indicates the rate of depreciation of the Rupee.

\# Indicative exchange rate as announced by FEDAI

1. Index of agricultural production with base Triennium ending 1969-70 = 100
2. Index of industrial production 1980-81 = 100.
3. April - October 1992
4. Index with 1981-82 = 100.
5. As in end December, 1992.
6. Index with 1982 = 100.
7. As in November 1992.
8. April - December, 1992.
9. As on January 31, 1993 for 1992-93 and at the end of March for previous years
10. April - January, 1993

International confidence had all but collapsed, commercial borrowings had dried up and even letters of credit opened by Indian banks were being generally rejected unless accompanied by confirmation by foreign banks

Accordingly the Government negotiated a standby arrangement with the IMF in October 1991 for $ 2.3 billion over a 20-month period, a Structural Adjustment Loan with the World Bank of $ 500 million and a Hydrocarbon Sector Loan with the ADB for $ 250 million Parallel with the effort to draw on multilateral sources, the Government also launched the India Development Bonds aimed at mobilising NRI sources of funds.

With the assurance of external support through these efforts there was a gradual stabilisation of the balance of payments position in the course of 1991-92 Foreign exchange reserves were restored to more normal levels increasing from $ 1 1 billion in June 1991 to $ 5.6 billion at the end of March 1992 The entire amount of drawals from the IMF in 1991-92 ($1.24 billion) plus the accretion from India Development Bonds ($ 1 63 billion) together amounted to an inflow of $ 2 87 billion This was less than the increase in reserves of $ 4.51 billion from June 1991 to end March 1992 In effect, the exceptional financing mobilised in 1991-92 was used primarily to build up reserves

The year 1992-93 saw a revival of imports to more normal levels The total value of imports in US dollars in the period April-December 1992 increased by 16.5 per cent over the level in the corresponding period of 1991-92. The increase appears large only in comparison with a highly depressed level prevailing in 1991-92. In fact the level of imports in 1992-93 as a whole is expected to be around $ 25 billion which is somewhat lower than the level in 1990-91.

Exports in 1992-93 performed far better than in 1991-92. Total export growth in the period April-December was 3.4 per cent in dollar terms compared with an observed decline of 1 5 per cent in 1991-92. The performance of total exports is depressed by the decline of more than 60 per cent in exports to Russia and other States of the former Soviet Union in 1992-93. The growth of exports to the general currency area in the period April-December was 11.4 per ent. The average growth rate in April-December 1992 has been adversely affected by a decline in exports of 12 5 per cent in December, reflecting the disturbed conditions prevailing in that month. Figures for January are also likely to be depressed by the riots in Bombay Total exports in 1992-92 may not exceed US $ 19 billion But it is hoped that the export performance in subsequent months will return to the high growth rates of 15-16 per cent observed during September-November.

However, there are important uncertainties in the balance of payments. The full impact of the disturbances in December 1992 and January 1993 on export and imports is difficult to asssess at this stage. Clearly, the receipts on account of tourism would be less than anticipated The inflow of NRI deposits has in any case been small this year The inflow of external assistance is also subject to some uncertainties consequent upon constraints that affect the rate of utilisation. A step-up in commercial borrowing was, in any case, not envisaged. Finally, there is the uncertainty arising from leads and lags Interest rates and exchange rate expectations do affect the timing of receipt of export proceeds and payment of import costs. However, while these uncertainties justify a measure of caution in assessing prospects, the balance of payments in 1992-93 has performed more or less as expected.

Inflation Control

Inflation was by far the most pressing problem for the common man and woman in 1991-92, especially as the rate of inflation for food articles was much higher than for all commodities. The situation improved considerably in 1992-93 with a gradual decline in the annual rate of inflation in the course of the year. The annual rate of inflation as measured by the wholesale price index declined from 13.6 per cent at the end of 1991-92 to 6.9 per cent on 30 January 1993. The decline in inflationary pressure was especially marked in primary articles including food grain. The anual rate of inflation in food grain was 3 per cent on 30 January 1993 compared with 24 3 per cent at the same time in the previous year The decleration in inflation is a major achievement of economic management in the past year

The moderation in inflationary pressure in 1992-93 has been partly due to the good performance of agriculture but it is in large part also due to the reduction in the Central Government's fiscal deficit, which has been a key element in the strategy for macro-economic management and control of inflation. The progress achieved in reducing the fiscal deficit in the past two years has been substantial The Central Government's gross fiscal deficit was reduced from 8 4 per cent of GDP in 1990-91 to 6.2 per cent in 1991-92 and the 1992-93 budget envisaged a further fall to 4.9 per cent. Thus the Centre's draft on domestic savings is scheduled to come down by 3.5 percentage points of GDP in two years. This massive fiscal correction has been a major disinflationary influence in the period.

Exchange Rate Policy

Reform of trade and exchange rate policy is a critical element in structural reform and a great deal has been done in this area. The exchange

rate adjustments in July 1991, and the trade policy announced subsequently, had considerably reduced the reliance upon licensing control of imports and created a more favourable exchange rate for exports, especially when account was taken of the premium on Eximscrips. The introduction of the Liberalised Exchange Rate Management System (LERMS) moved further in the direction of eliminating licensing control and allowing the exchange rate to reflect the scarcity of foreign exchange. The system has worked fairly well during 1992-93. Despite virtually complete removal of import licensing on all raw materials, components, intermediates and capital goods, the trade account has been managed fairly effectively without any undue pressure on the exchange rate. The difference between the free market rate and the illegal or *hawala* rate is fairly small, around eight per cent or so which is an important factor moderating the diversion of foreign exchange into illegal channels.

Parallel with these developments, the rigours of exchange control have been mitigated. The Foreign Exchange Regulation Act was amended by Ordinance in January 1993 to remove a number of constraints on foreign exchange dealings and various restrictions on firms with foreign equity holdings. Legislation in this regard will be introduced in the Budget session.

Industrial Policy

The delicensing of industries in July 1991 has worked well. Competition has been intensified, and a certain dynamism has been imparted to Indian industry. The success of the experiment favours further progress in the same direction.

Several initiatives have been taken to promote foreign investment such as automatic permission for foreign equity holdings up to 51 per cent in Appendix III industries, expeditious clearing of other foreign investment proposals by the Foreign Investment Promotion Board (FIPB), facilities for portfolio investment by foreign investment institutions, and permission to reputed Indian companies to float equity abroad. These constitute an important beginning. The total volume of foreign investment approvals at Rs. 42.9 billion granted under the automatic and non-automatic route during August 1991 to December 1992 is more than three times the Rs. 12.7 billion of foreign investment approved in the last decade. There is no doubt that there is a considerable increase in interest on the part of foreign investors including in some of our important priority areas such as power or petroleum refining.

National Renewal Fund

Our labour legislation, which was originally designed to provide workers with maximum security in terms of employment and wages, is now seen to present some problems. If an enterprise turns sick or closes down, it is difficult to secure to the workers rights which only healthy entrprises can afford to give. The economy faces various hazards—hazards of drought, payments crises, shortages etc. which have to be shared by the people. In addition there are risks faced by workers in any firm that are incident upon the industry or the firm. What security has been given has been available to a small number of organized workers; and the security has proved increasingly illusory with spreading sickness. In a competitive world, the fortunes of firms are inextricably linked with their performance and it is difficcult to envisage a system which insulates workers from the misfortunes of the firms in which they work. This is why it is essential to ensure that credible social safety nets are developed so that the costs of adjustment as we transit to a more competitive and hopefully more dynamic economy are not borne exclusively by workers. The National Renewal Fund which was operationalised in 1992-93 is an important beginning in this direction. It provides a mechanism for compensating workers of public sector enterprises subjected to restructuring while also helping to restructure and modernise the enterprises. However, other mechanisms also deserve serious consideration. Some consideration of unemployment insurance and income stabilization arrangements may be necessary if workers' incomes are to be protected without reducing the flexibility of employment practices.

Agricultural Policy

With one third of the GDP and two-thirds of the population still dependent on agriculture we cannot achieve our objective of accelerating overall growth in the economy, or improving the standard of living of our people, without a substantial acceleration in agricultural growth. The trend growth rate in Indian agriculture at present is a little over 2.2 per cent per annum. It needs to be raised to around three per cent if GDP growth is to be accelerated significantly in future. This acceleration in agriculture requires action on several fronts including raising the levels of investment, resolving problems of land tenure, increasing availability of credit, ensuring appropriate pricing policies and developing new technologies to increase productivity.

Institutional constraints relating to land tenure, including especially the lack of progress in consolidation of holdings, continue to hold back productivity in many areas. Consolidation of land holdings is important if we are to produce a viable small farmer economy and programmes in this regard need to be vigorously pursued in the States.

The pricing policies towards agriculture must ensure that the farmer gets a remunerative price for his product and substantial increases have been announced in procurement prices in 1992-93 to ensure that price incentives are maintained. There are limits to the extent to which we can follow a policy of subsidising inputs, which could put open-ended burdens on the Budgets, Some subsidies are justifiable but in general we should ensure that farmers are charged reasonable prices for their inputs and that these costs are appropriately reflected in the support prices announced by Government. In this context it is relevant to mention that agriculture will be a major beneficiary of the policy of reducing the high level of protection earlier given to industry. High protection to industry has typically meant that our industrial prices are much above world prices whereas our agricultural prices are much more in line with world prices and in many cases actually lower. We need to redress this imbalance by reducing industrial protection and simultaneously allowing, and indeed encouraging, agricultural exports. The scope for agricultural production for exports, including high-value products with some processing, is very substantial. This should be fully exploited, not only in the interest of the farmer but also in the interest of strengthening the balance of payments. Finally, the logic of liberalisation implies that agricultural products must be allowed to move freely within the country in response to market demand. We must move away from the use of administrative measures to retrict movement in agricultural products as has sometimes happened in the past.

Poverty Alleviation

The Government has built up a large number of programmes to alleviate poverty. But our coutnry is large, and the poor are numerous. The reach of poverty alleviation programmes has thus been limited. The poor are entirely dependent on their own labour; hence it is important to ensure that national output and employment grow as rapidly as possible. But in the meanwhile, there will continue to be a need for preventing distress, addressing special hardships, and creating opportunities for the disadvantages. Funds for programmes to serve these needs have been constrained in recent years because of severe pressure on budgetary resources. One consequence of restoration of fiscal balance would be that the Government would be able to devote large resources to poverty alleviation programmes. It is the intention of the Government to begin this process of restoration straight away.

However, the effectiveness of poverty alleviation programmes will depend on how well the money is spent. It will be necessary to integrate these programmes into the overall stragegy of decentralised rural development, sensitive to local needs and resources, and with greater emphasis on creation of durable social and economic assets. It will be necessary to use the immense potential of Panchayati Raj institutions to make a success of these programmess.

H.R.D.

Over the year, our educational system has expanded considerably. But our performance in this area needs further improvement. Our literacy level is still low in comparison to developing countries similar to us. The quality of primary education is poor; this has often been a major contributory factor to the high drop-out rate amongst the pupils. However, non-formal approaches to this problem have been a remarkably successful supplement to the formal schooling system, and some districts have reached or are on the point of reaching 100 per cent literacy. Universalisation of primary education has to be major national objective in the 1990s. Literacy should be promoted as an useful input in life and work. Once the grown-ups become literate, their children are much more likely to acquire learning. Educated mothers are likely to invest more into the education of their children and hence to have fewer children. Adult female education is perhaps the single-most effective instrument for population control.

As with education, the aim of the health care system should be to enhance the capacity of people for a productive and happy life. Our infant mortality is unacceptably high; this is only one obvious indicator of the room for improvement in health care. The emphasis should be on preventive health care-on the provision of safe drinking water, the prevention of waterborne diseases, and on the promotion of healthier ways of living. Health programmes need to be integrated with those for family welfare, and local communities need to be more closely involved in both.

Energy Policy

Under any conceivable development strategy, the demand for commercial energy is bound to go up. Since this happens to be a very capital intensive industry, the challenge ahead is to create an environment in which requisite resources, internal and external, can be mobilised. Government has taken major decisions to open up the hydro-carbon and power sectors to private enterprises so as to supplement the effort of public sector. However, the magnitude of response will depend crucially on the reform of pricing and distribution arrangements.

In the power sector, the problem of low rate of return and persistent organisational deficiencies in the functioning of State Electricity Boards (as evident from sub-optimal plant load factor and heavy

transmission and distribution losses) will need to be squarely faced. It is also clear that private sector power generation companies will be attracted to invest only if the State Electricity Boards are in a sound financial position to ensure prompt payment for electricity bought by them. Alternatively, a fresh look will have to be taken at distribution systems, with the private power generating companies being able to sell their power to some bulk consumers. Energy planning in the future will also have to pay greater attention to environmental concerns. Maximum possible emphasis has to be laid on energy conservation to save on capital costs as well as to minimise the environmental hazards.

Self-improvement is driven by human endeavour, but conditioned by the social, economic and politicial environment, for this environment determines the incentive patterns which drive endeavour. It is this environment that our structural reforms aim to change. They seeks to create an environment of opportunity and challenge, freedom and excitement. The Government must continue to protect the weak and help the poor, to ensure peace and prevent mischief. But beyond this, our people should have the chance to exercise initiative and ingenuity, for in their endeavour lies the promise for the country. It is surely possible for even a poor country to become a better place with its own efforts. Towards this goal decisive steps have been taken in the past year and a half. They set a direction in which hope lies. □

Gains Of The Last 20 Months

- Annual rate of inflation reduced from 17% in August 1991 to below 7%.
- Restoration of a measure of normalcy to our external payments.
- Fiscal deficit reduced from 4% of GDP (Gross Domestic Product) in 1990-91 to about 5% in 1992-93.
- Agriculture performed well and industrial production recovering.
- Economic growth which had declined to 1.2% in 1991-92 expected to be around 4% in 1992-93.
- Despite virtual removal of import licensing, total imports lower in 1992-93.
- Market exchange rate of rupee relatively stable.
- Investment climate improved ; corporate capital issues in April—October 1992, 67 per cent higher than in the same period of 1991.
- Foreign investors showing active interest. Between August 1991 and end of january 1993 approvals given for foreign equity investment amount to $ 2.3 billion.
- Programmes for the poor and the disadvantaged not affected by new policy initiatives.

(Courtesy : D.A.V.P.)

Towards A Uniform Standardisation

.Madhulika Prakash

THE technological, industrial and political developments all over the world have created a greater interdependence among nations and the natural boundaries and trade barriers are diminishing. This has led to effective utilization of world resources and rapid growth in competitive international trade. These developments have resulted in a demand for a common denominator for evaluating and judging quality needs in the world market and necessitated development of international standards to guide world trade. These standards are fast becoming an indispensable language in trade and commerce and greater pressures are being brought to bear on standards organizations to develop such standards in time, more so in fast moving technology areas.

The role of standards to support economic development, facilitating trade, improving the quality of life such as encapsulating new technologies in useable tools for the industry is being widely recognized. These benefits have been further reinforced by reference to standards in contracts, legislation, public purchasing and by using them as a basis for certification of both product and quality systems. Thus standards have gained an enviable position as instruments of commercial transactions and building competitiveness in the market place.

The beginning of the twentieth century witnessed the emergence of standards movement in the world. The first national standards body (NSB), the British Standards Institution was set up in 1901. Soon after World War I, a number of NSB's both in the developed and developing world were established to guide war raven economy on the drails of process. As demand for globally standardized products increased, a need was felt to establish closer cooperation among the NSB's to develop global consensus.

The emphasis however shifted to international standards when products and services started crossing the boundaries of the nation. International Electrotechnical Commission (IEC), first of its kind, was established in 1906 for evolving international standards in electrotechnology. The real transformation in international standardization took place soon after the World War II when the International Organization for Standardization (ISO) was set up in 1946. The ISO together with IEC today forms the international system of standardization.

The ISO and IEC play a pivotal role in bringing out international standards which facilitate the international exchange of goods and services.

The shift towards international standardization was further triggered when the GATT Agreement on Technical Barriers to Trade reinforced the importance of international standards by stipulating "where technical regulations or standards are required and relevant International Standards exist or their completion is imminent, parties shall use them or relevant parts of them as basis for the technical regulation or standard".

As a first step towards coordinated International Standardization the IEC and the ISO started harmonization of their procedures for standards formulation and voting an ISO/IEC System for International Standardization. The harmonized system provided by ISO & IEC is flexible and responsive to the market, rapidly adaptable to the needs of emerging technologies, capable of producing documents directly applicable to trade, and essential to the efficient working of international commerce. IEC/ISO voluntary standardization, carried out on the basis of world-wide consensus, enables technology to be applied in a coherent way at every stage of its development, and contributes to the general welfare of all economic and social partners.

Challenge Ahead

A greater challenge is ahead of international standardization bodies. The traditional procedurs for developing standards which took long time has become irrelevant especially in fast moving technology areas. Though steps have been taken by both ISO and IEC to produce standards through fast track, this needs a concerted effort.

International standards have become the basis for conformity certification to facilitate trade and technology transfer through enhanced :

— Product quality and reliability at reasonable price,

— user safety, environmental protection and reduction of waste,

— compatibility and interoperability of goods and services,

— simplification for improved usability,

— reduction in the number of models, extension of production series, and thus reduction in costs,

— distribution efficiency, and ease of maintenance.

Certification of conformity to standards, which is necessarily associated with standardization, enables qualified products and services to be offered in the world market without the need for further testing and inspection.

The IEC already has an experience of this approach in operation of two international systems of certification namely system of quality assessment of electronic components (IECQ) and system of conformity testing to standards for safety of electrical equipment (IECEE).

Regional standards are becoming precursor to international standardization. The European Communities (EC) is the best example today in understanding the importance of standardization (both national and international) and its contribution towards economic development of the Single European Market (SEM). The EC has defined a new role vis-a-vis international standards institutions.

The Commission of the European Communities issued a green paper which proposed a Europen Standardization System. The paper enunciates European standards through the three bodies, namely, the European Committee for Standardization (CEN), the European Committee for Electrotechnical Standardization (CENELEC) and the European Telecommunications Standards Institute (ETSI). For guiding certification and conformity assessment, the European Community (EC) has created a European Organization for Testing and Certification (EOTC). This is designed to develop common certification and testing policies and to develop mutual recognition agreements with foreign jurisdictions. The EOTC is now operational to a limited extent and would be fully operated in 1993. Efforts are afoot within the community to provide for the recognition of each other's accreditations of certification or testing organizations and eventually develop European Accreditation Council.

The other parts of the world are also fast moving towards economic regional groupings to develop better bargaining power in the world trade. A free trade regional agreement—the North America Free Trade Agreement (NAFTA) has been recently established. Similar other groupings have come up such as the Australia New-Zealand Agreement for Closer Economic Relations (CER) and ASEAN Free Trade Area (AFTA) using the Common Effective Preferential Tariff (CEPT). Since international standards would be more acceptable in international market, all groups work towards harmonization of their regional standards to international standards. The main reason for this approach is to further international trade and remove trade barriers to promote impartial and transparent international system of standardization.

The ISO 9000 series of standards revolutionized the world and more than 60 countries have adopted them. But the need which is becoming more apparent is for a world-wide system for conformity assessement of companies to these standards. Independent accreditation of certification bodies to provide mutual recognition of different systems and acceptance of legal liability is an inescapable need for harmonization of accreditation policies and procedures which are acceptable world-wide. Even through ISO Council Committee on Conformity Assessment (CASCO) has brought out guidelines for operation of certification bodies which could become the basis for mutual recognition, there is a need to establish an international system for accreditation. To try and resolve this problem the ISO/CASCO has recently been given the task to recommend some suitable and acceptable international mechanism for accreditation of certification bodies especially of quality management systems.

Globalization—standardization—international trade; such linkages have seldom been so important than they are today. Events are unfolding so rapidly that probably by the turn of the century all countries will relate to the same standard. One needs a score sheet to keep up with what the future holds for international standardization with current trends in the modernisation process and the monumental changes taking place in technology and trade today. □

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Multiple Cropping Holds Prospect In North Eastern Region

Dr. A.N. Sarkar

THE concept of sub-regionalisation of agricultural planning based on Agro-climatic zones was introduced by the Planning Commission in mid-eighties, as a key to future agricultural development of the Country. Based on certain important parameters such as soil, climate, rainfall, humidity, temperature, sunshine, topography, surface and ground water regime and other agro-meteorological characteristics, the country has been divided into 15 agro-climatic zones. Under the classification, the NE Region falls in the Eastern Himalayan Zones, and considered to be the most diverse, complex and resourceful region of the country. The Eastern Himalayan Region has been further sub-divided into following five microsub-regions on the basis of dominant agro-climatic parameters such as topography, rainfall, temperature, soil types, cropping system, geographical continuity / proximity.

Sub-region I : Himalayan Hills comprising Sikkim and Darjeeling District of West Bengal.

Sub-region II : NE Hills comprising Arunachal Pradesh, Meghalaya, Nagaland, Assam Hills (*i.e.* Karbi Anlong, NC Hills).

Sub-region III : Southern Hills and Valleys comprising Manipur, Tripura and Mizoram.

Sub-region IV : Central and Lower Brahmaputra Valley comprising Nowgong, Darrang, Kamrup and Goalpara District of Assam

Sub-region V : A. Upper Brahmaputra Valley comprising Lakhimpur, Dibrugarh, Sibsagar,

B. Barak Valley (Old Cachar District).

This paper among other things, attempts to highlight the salient features concerning planning for agricultural development of NE Region with emphasis on multiple cropping based on agro-climatic sub-classification.

The NE Region, broadly divided into 5 district agro-climatic sub-zones, interspersed with hilly terrains and plains, offers immense potential for growing a large variety of crops like cereals, pulses, oilseeds, millets, jute, mesta, sugarcane, cotton etc. However, against the projected demand of 7.80 million tonnes of food grain by 2000 AD, the current level of production of NE Region is merely 4.20 million tonnes from 3 90 million ha. This leaves a wide gap in terms of end food availability. The additional requirement of food grain to the tune of 2.00 million tonnes, is being imported from outside the region through diversion of funds that could otherwise be spent on developmental activities. In addition to food grain, it is observed that the overall production and productivity of the region in terms of horticultural produce, milk, meat, pork, egg etc are also abysmally low compared to the national average necessitating also import of these items to meet the domestic needs.

Constraints

Though the NE Region is agro-climatically suitable for growing wide varieties of field crops, vegetables, horticultural crops, plantation crops, spices, tea, rubber, coffee etc. a large number of factors come in the way of achieving higher productivity. The dominant factors that had so far affected overall growth and development of Agriculture include : erratic distribution and long spell of rain, followed by alterate cycles of flood and drought, extensive jhum cultivation, traditional agro-techniques, low land -man ratio, lack of mechanisation, lack of availability and improper delivery system of critical agricultural inputs like seeds, fertilizers, plant protection chemicals etc. This apart, inefficient soil and water conservation, lack of extension support, agro-services and inadequate training and skilled manpower also affect agricultural productivity.

Although a large number of Intensive Agricultural Developmental Programmes have been implemented over the Plan period, a systematic evaluation of the results would indicate that these had constantly suffered from certain inherent short-comings primarily linked with improper crop planning, inefficient land, water and resource management and last but not least, improper co-ordination amongst the implementing agencies. Equally, it is a matter of concern that some of the Natioal Programmes such as Special Food Production Programme, National Pulses Development Programme, National Oilseed Development Programme, Small & Marginal Farmers Development Programme etc. have not been extended to all the NE States. This had clearly left the NE States with the option of developing its own agricultural system entirely based on local experiences, expertise and optimal utilisation of natural resources.

Whereas it is not so difficult to step up productivity of the plain areas of the North East through intensive and modern method of cultivation, but for any major thrust in over-all agricultural activities in the Hill States such as Arunachal Pradesh, Meghalaya, Mizoram and Nagaland it needs more careful consideration on mode of utilisation of resources and choice of technology, as we all know, these States are generally affected by jhum cultivation, characterised by mono-cropped system, low productivity and fast depletion of soil fertility. Because of varying topographical features, physical remoteness, diverse agro-climatic potentialities, different socio-economic millieu etc. the farming systems in the hilly areas need, by far, differential treatment and priorities, compared to those practised in the plains. A reflection on the comparative requirements for two agricultural systems prevailing in the North East would suggest the areas of priorities and thrust to achieve higher productivity through multiple cropping and diversified farming approaches.

Strategies

Out of 4.00 million Ha cropped area, nearly 3.10 million Ha falls in the plain areas, mainly in the States of Assam, Manipur and Tripura and foothills and valleys of other NE States. These areas should also represent zone of concentration for intensive agricultural activities involving cultivation of high yielding varieties of rice, wheat, maize etc covering nearly 1.20 million Ha. Out of this a gross irrigation area of 8 million Ha, with assured irrigation facilities provides opportunities for multiple cropping for achieving higher productivity through higher cropping intensity. Contrary to this, the non-irrigated areas suffer from such serious constraints as inadequate supplemental irrigation during Rabi and Kharif seasons, restrictive use of animal drought power, power tillers and light agricultural implements etc. rendering the farmers incapacitated to cultivate the second or the third crop in succession after the first kharif crop.

The flood affected areas on the other hand, have the problem of repeated crop failures because of lack of seedlings as a result of repeated interruptions by inundating flood water.

With a view to overcoming these problems faced in the plain areas as also to streamline measures for enhancing agricultural productivity through multiple cropping, certain strategies are suggested for adoption. These are :

(i) Firstly, to explore and exploit additional potential ground water resources for expansion and optimisation of minor irrigation facilities to areas that are hitherto not covered by traditional irrigation network.

(ii) Development of short-duration, high yielding, fertilizer responsive and non-lodging rice cultivars is suitable for inundated and flood affected areas during the first monsoon period. These cultivars should be photo-insensitive so as to allow planting both in pre-flood and post-flood situation ensuring moderate yield and minimum crop failures. For late transplanting, the suitable rice cultivars are IR-50, Pusa 2-21, CR-2371. In the low lying areas that are either waterlogged or have perennial irrigation source, Boro paddy varieities such as Boro 2, Kalinga 2, C-10, C-13 etc. may be suitably grown.

(iii) The irrigated areas may even be brought under triple cropping system by way of providing high doses of fertilizers, manures and required quantities of irrigation water at the critical growth phases of crops. The cropping sequence in this case should be the generally recommended pattern such as kharif rice, followed by pulses and oilseeds in the rabi and boro paddy and/or vegetables as well as certain other crops in the summer season.

(iv) For non-irrigated areas light and repeated tillage operations in post-harvest kharif season, using mould-board plough or light power tillers, followed by organic amendments or green manuring would help maintain better fertility and residual moisture regime so that a second crop or a crop mix may be practised to achieve higher productivity.

Cropping Pattern

The agricultural practices in the region are broadly divided into two distinct types namely settled farming practised in the plains, valleys, foothills and terraced slopes and that of shifting cultivation practised in the

hill slopes. It is a natural corollary of the physiographic and cultural background of the region that by far the higher proportion of 72.16% of the area under settled agriculture is in the plains of sub-regions IV and V. Considering about 1.80% of the cropped area in the hilly sub-regions of I, II & III categories that are to be added to sub-region IV & V, the settled agriculture, effectively accounts for 74% of the total cropped area ; while shifting cultivation covers about 26% of the total cultivated area of the region.

The existing cropping pattern of the region is dominated by rice-based cropping system. The relative distribution between the food crops and non-food crops are 81% and 19% respectively for the region as a whole. This indicates subsistance nature of agriculture with least diversification. Statistically speaking, sub-region III has the highest percentage (92.37%) of cropped area under food crops followed by sub-region II (89.24%). Any major effort to intensify agriculture through Multiple Cropping Systems should attach pointed priority for development of these sub-regions.

Within each of the sub-zones in the plain areas of NE region one come across a variety of land situations characterised by variable and fluctuating moisture availability regime, which in turn, determines the cropping pattern strategy. Based on this principle, cropping pattern of the plains in the NE region should appropriately follow the sub-zonal characteristics which are broadly differentiated into 6 categories, namely (i) Upland (Flood free) situation, (ii) Medium land (flood free) situation, (iii) Low land (flood free) situation, (iv) Low land (flood prone situation), (v) Deep water (flooded situation) & (vi) Very deep water (land-submergence situation).

The following are some of the illustrative pattern of multiple cropping for the plain areas in terms of choice of crops, cropping sequence and the seasonability of crops for the land capability and moisture regime based farming situations : Multiple Cropping Systems described herein range from upland—rainfed farming to low-land wet farming.

(i) Upland (flood free)

(a) Summar Vegetables (mixed or inter cropped) followed by one or more of rabi crops (viz wheat, rapeseed, lentil, pea, green gram, black grain, potato).

(b) Ahu rice followed by one or more of the rabi crops (viz.pulses).

(c) Ahu rice followed by winter vegetables (e.g. tomato, brinjal, carrot, french beans, onions, garlic, radish, spinach).

(d) Soybean followed by wheat.

(e) Summer moong followed by maize/rapeseed/potatoes.

(f) Summar moong/summer vegetables followed by winter vegetables.

(g) Ahu rice followed by grains/ blackgram followed by oats as fodder.

(ii) Medium land (flood free)

(a) Direct seeded ahu rice followed by sali (winter) rice.

(b) Ahu rice followed by wheat, rapeseed, potato etc.

(c) Winter rice followed by fodder oats, peas etc.

(d) Winter rice followed by winter vegetables.

(iii) Medium land (flood prone)

(a) Ahu rice followed by late transplanted winter rice.

(b) Ahu rice followed by wheat/ rapeseed/potato/fodder oats.

(iv) Low land (flood free)

(a) Direct seeded Ahu rice (April-July) followed by normal sali rice (July to Nov./Dec).

(b) Trasplanted Ahu rice (June to November)—late sali (Mid September to late December).

(v) Low land (flood prone)

(a) Moderate deep water situation :

(i) Rice (asro bao) mixed with ahu followed by boro rice.

(ii) Jute followed by boro rice.

(b) Very deep water situation :

(i) Deep water rice followed by boro rice.

Since the multi-cropping strategy for the plain areas is dominantly rice-based there is a clear need for development and propagation of short-duration early maturing, non-photo sensitive high-yielding rice cultivars particularly suited to medium to low land flood prone areas of North East. Some of the short duration rice cultivars suitable for planting in the pre-flood and post-flood situation developed/screened by Assam Agricultural University and those recommended under All India Rice Improvement Co-ordinated Projects of ICAR need special emphasis for wider field testing, co-ordinated trials and mass scale adoption by the farmers if a major break-through in agricultural productivity through rice based multiple cropping system is contemplated for the region in the last decade of this century

The hill areas of the North East traditionally suffer from the serious setback of deforestation and intensive jhum cultivation affecting nearly 4.6 lakh Ha of area and about 4.30 lakh jhumia families. On account of limited avilability of cultivable land, potential flat land and that of a complex land tenural system prevalent in the hill region, the tendency of the poor tribals have been to resort to shifting cultivation in an age-old manner for survival and sustenance. This practice with

progressively shortened cycle together with a large scale deforestation has resulted in a massive destruction of biotic covers and consequent erosion of soils, water resources and fast depletion of plant nutrients. Apart from the obvious menaces of jhum cultivation, the other basic problems that had perennially affected productivity of hilly areas are those associated with inadequate road transport and communication system, restricted availability and high price of agricultural inputs, lack of basic infrastructure, non-existent or very limited market avenues for the produce, improper extenstion and training support and less access to information on modern methods of cultivation This has virtually forced a large proportion of the tribal hill population to continue with the traditional method of cultivation characterised by mono-cropping systems, use of locally available agricultural inputs etc. with low capability for production.

In the light of inherent constraints faced in hilly areas of North East, following strategies are suggested for attainment of higher agriculture, horticulture and livestock based farm productivity.

1 "Adoption of Model land use pattern" as recommended by the ICAR for jhum lands, involving terracing, contour bunding, half-moon terracing etc in conjunction with appropriate soil and water conservation measures and judicious application of proven quality seeds, fertilizers, plant protection chemicals etc.

2. Replacement of vintage local cultivars with high yielding varieties developed by the ICAR, Agriculture Universities etc. and those recommended by the All India varietal release committee.

3. Wherever feasible, intensive wetland rice cultivation, adopting a package of improved scientific practices. This may be combined with pisciculture, duckery, piggery in a composite manner.

4. Replacement of mono-cropping and mix-cropping in a single season by multiple cropping and suitable inter-cropping systems spread over two seasons. In case of inter-cropping, this could be done as 'alternate row planting' in the bench terraces with suitable assortment of cereals, pulses, oilseeds, fruit trees, legume fodder, legume grasses, fuel wood plants etc. Alternatively, some of the cash crops such as spices, fruit trees, medicinal and aromatic plants and plantation crops may also be grown as possible mix of perennial crops for better economic returns and sustained productivity.

5. Stress should also be given for adopting diversified farming practices with suitable components such as agriculture, horticulture, apiculture, sericulture, handloom and handicraft for long term economic benefits of the hill population These should, however, be adopted keeping in view local availability of resources, skill, technical know-how, availability of extension support and accessibility to ready market for sale of agri-horticultural and livestock based produces at remunerative prices.

For Hill Areas

Pineering Research works done by the ICAR Research Complex for NEH region have helped develop a large number of crop cultivars for their cultivation in suitable agro-climatic belts in the hills of NE region. The cultivars with high yield potentials, wider adaptability, multiple resistance and bettar compatibility to grow with diverse cropping sequences would contribute to higher aggregated yield resulting in better productivity for the hilly region. Based on multi-locational trials conducted by the ICAR, some of the multiple cropping systems that have been found to be effective for hilly region may be mentioned as follows :

Intercropping of maize and soybean or urad/arhar (1 : 1 ratio) is recommended for Meghalaya and Arunachal Pradesh. For all the NE States, intercropping of rice and soybean or groundnut in two or three rows of soybean/groundnut (2 : 1/3 : 1) or arhar (4 : 1) should be adopted for kharif. In rabi season, pea/wheat/ linseed is recommended after harvesting of rice/maize/soybean.

Maize intercropped with green grain (Pusa Baisakhi) —paddy— wheat sequence is recommended under rainfed conditions in the lower terraces of hillocks in the mild altitude areas of Nagaland. Pulse oriented combination like green-gram and sesamum-Bengal gram is recommended under rainfed conditions in upper terraces of mild altitude hillocks in Nagaland

Rice or soybean or maize followed by sweet potato or groundnut or cowpea followed by toria are recommended for hillocks of Tripura.

Cropping system recommended for the valley lands of Tripura, Meghalaya and Manipur are as follows :

State	Early kharif	Main kharif	Rabi
Tripura (Irrigated)	Jute	rice	Potato/wheat
Tripura (rainfed)	rice	rice	mustard/wheat/
peas	—	—	—
Manipur	rice	rice	wheat/mustard
Meghalaya	—	rice	wheat/maize

Situation	State	Rice Varieties	Duration	Yield Q/Ha	Remarks
Low Altitude	Manipur	Punsi, Prasad, RCPL-3-5	MD	45-50	Lowland
		RCPL-3-7, RCPL-3-5	SD	40-45	Lowland
	Mizoram	IR 36, Jaya Select	MD	45-50	Lowland
		KRISHNA	MD	35-40	- do -
		VI-8, VI-206	MD	25-30	- do -
	Nagaland	Uday, Ratna, IR 36, Pankaj	MD	25-30	- do -
	Tripura	Rasi	MD	25-30	- do -
		TRC-246-C-10	MD	50-60	Boro and Cold Tolrance.
Mid Altitude	Meghalaya	IRAT 140, IRAT 141 IRAT-109	MD	25-30	Upland
High Altitude	Meghalaya	RCPL-1-1C, RCPL-1-2C	LD	35-40	- do -
		RCPL-1-6C	LD	- do -	- do -

SD : Short duration, MD: Medium duration; LD Long duration.

ICAR Research Complex for NEH Region has developed and recommended certain short and medium duration high yielding rice varieties suitable for cultivation in the hilly region. Specific varieties have also been developed for cold tolerance and disease resistance to be grown in high altitudes. The recommended rice cultivars suitable for cultivation in low, medium and high altitude conditions of NE hill States are as given above.

NEH region, ranging from tropical, semi-tropical to temperate agro-climatic conditions, is congenial for growing a number of fruits and vegetables. They can be grown in alterate rows as mix crops or as perenial cropping system for long term economic benefits in conjunction with other diversified agricultural systems. Some of the promising varieties of horticultural crops recommended by the ICAR for their cultivation in the high hills (2000 m), mid-hills (800 m & above) and low hills (300-800 m) of NE region are given below.

Promising Varieties of various horticultural crops recommended for N.E. Hills Region

Altitude above msl	Vegetables	Period of cultivation	Promising varieties	Yield q/ha
1	2	3	4	5
1. High hills (2000 m)	Tomato	March-June	Pant-1	66
	Pea	March-June	Arkel	24.60
	Radish	May-December	Meghalaya Selection	678.2
			Pusa Reshmi	600
			Japanese White	594
	Cauliflower	May-December	Sel-5	243
			Sel-7	221
			Megh. Sel	203
2. Mid-hills (800m & above)	Bea	March-June	(a) Bush types	
			UPF-191	152
			UPF-204	140
			Premier	133
			(b) Pole types	
			Kn-13	138
			Phenomenal	125
			Long podded Kentucky Wonder	130
3 Low hills (300-800m)	Tomato	April-July	SW - 72	280
			HT-8	240
		January-April	HS-101	224
			Pusa Ruby	146
			Angurlata	187
	Brinjal	June-September	Azad Kranti	162
			PPC	210
			PPL	150
	Radish	August-Nov.	Japanese White	469
	Bhindi	April-July	Pusa Sawani	112
	Bittergourd		CO-1	40

To sum up, the agricultural practices for the North East will continue to follow rice-based multiple cropping system. Areas with assured irrigation and medium land with flood free situation should go in for triple cropping and these should constantly be facilitated through high seedlings replacements, high intake of fertilisers and scientifically designed crop rotations. Conjunctive use of surface and ground water in upland and medium lands in extended areas would substantially aid to increased cropping intensity. Adoption of recommended cropping strategies for pre-flood and post-flood situations followed by winter tillage and application of suitable dry farming technologies would ensure double cropping in the rainfed farming belts in sub-regions II & III. Model land use pattern recommended by the ICAR, combined with diversified farming approach involving agriculture, horticulture, animal husbandry, fishery etc., would give not only higher yields but also higher income, better stability and sustainability to those who have to continue with hill farming for generations to come. ▭

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Integrated Rural Energy Planning

THE Integrated Rural Energy Planning (IREP) programme has been a major effort in planning for energy for rural development.

The IREP programme was developed as a plan scheme in the Seventh Plan on the basis of the experience of a pilot rural energy planning exercise taken up by the Planning Commission in the Sixth Plan. Under this, pilot projects were set up in a few selected blocks in different parts of the country for developing the methodology for decentralised integrated rural energy planning and for developing institutional arrangements for preparing and implementing integrated rural energy plans and projects. On the basis of the experience of this exercise, the programme was prepared and taken up as a regular Plan scheme in the Seventh Plan. During the Seventh Plan and subsequent two annual Plans in 1990-91 and 91-92, around 250 blocks have been covered under the IREP programme.

Despite the problems and constraints, a sound base for the implementation of the programmè has now been created. The demonstration and extension efforts have resulted in awareness at all levels in the Government and non-governmental set-up about the widespread interest which has been generated among the rural people especially in IREP blocks on various alternative and existing energy sources and their efficient utilisation for meeting their needs. With these positive achievements the IREP after some reorientation and modification, has become a major operational programme in the Eighth Plan.

In keeping with the broad objectives of the Eighth Plan, the Integrated Rural Energy Programme will focus on the following two major areas :

(a) Provision of energy for meeting the basic needs of cooking, heating and lighting, specially for the weaker section, by utilising locally available energy resources to the extent possible ;

(b) Provision of energy as the critical input in the economic development of the rural areas which would result in the creation of employment, increasing productivity and income and accelerating the process of decentralised development. In this category will be included energy for sustainable agricultural production, as well as promoting sustainable rural development activities.

The programme has now sufficient experience in micro-level energy planning for meeting subsistance and production needs. But the extension and intensification of the programme has to be carried out by effective linkage of the programme and its implementation, with the State and District planning set up on the one hand and with the agricultural and rural development programmes on the other hand. The IREP in the Eighth Plan will also ensure sustainability of energy supply to the rural areas in view of the growing gap between energy demand and supply and the grave damage that is being done to the eco-system because of steady depletion of the biomass cover. The environmental aspect will, therefore, be suitably incorporated in the micro and macro level rural energy planning framework.

The expansion of the programme, however, would be taken up in a phased manner so that its growth is in step with the development of local capabilities, awareness building, readiness of the community to actively participate in the programme and the avilability of institutional mechanisms to provide for the regular flow of energy resources and technologies, including their installation and maintenance for the sustainable agricultural and rural development.

The IREP in the Eighth Plan will have the following major features :

(a) Extension of the programme to cover at least 100 blocks per year ;

(b) Provision of minimum energy needs of cooking, heating and lighting in each IREP block, so as to ensure 100% coverage for the economically weaker sections;

(c) Provision of the most cost-effective mix of various energy sources and options for meeting, to the extent possible, the requirements for sustainable agriculture and rural development by giving due weightage to the environmental considerations;

(d) Ensuring large scale people's participation in the planning and the implementation of the programme by direct involvement of panchayats, voluntary and non-official bodies and institutions and the establishment of self-managed organisations and other appropriate people-oriented arrangements wherever feasible at the micro-level for the implementation of the IREP projects.

(e) Setting up and strengthening of the mechanisms and coordiantion arrangements that would effectively link micro-level planning for rural energy with national and State level planning and programme for energy and economic development so as to ensure regular and planned flow of energy inputs and espcially of the commercial energy sources for meeting to the extent possible the requirement of various end uses in the IREP projects. □

CSIR—Synchronising Research With Results

Dr. S.K. Joshi

THE demands of increasing competitiveness to carve out a better share in the world trade depend heavily on the know-how application. Close link of the national research base with industries and markets gains significance in this context. The Council for Scientific and Industrial Research (CSIR) has now geared up its activities to be of more value to Indian industry by taking up and arranging research and development programmes.

The major function of this apex body under the state auspices include promotion, guidance and coordination of scientific and industrial research. The CSIR has a well-knit result oriented network of 40 laboratories and 80 field and extention centres spread throughout the country. Today, CSIR reflects the entire gamut of R & D fields from micro electronics to medicinal plants : molecular to material sciences; oceanography to space and chemical to construction engineering.

The cumulative annual production based on CSIR technologies is of the order of Rs. 12,000 crore whereas the savings to the economy due to the productivity improvement comes to about Rs. 2,500 crore. These technologies contribute to an annual industrial production of Rs. 1600 crore.

Pioneer Work

Over the fifty years the CSIR has performed its assigned role in consonance with the national needs and priorities. In the initial period when the indigenous industry was at a nascent stage of growth, the CSIR provided useful back up in meterology, standardisation, testing and analysis,and the supply of trained scientific manpower. Now when the industry has reached maturity, the CSIR has tailored its research and development activities to provide 'state-of-the-art' and cost effective technologies.

Researches started bearing results a long time back. Not many people are aware that the first wholly indigenous tractor was based on the CSIR know-how. Council's contributions to petrochemicals, pesticides and pharmaceuticals industries are now increasingly being recognised nationally and internationally. The pioneering work has been done by CSIR in the exploitation and utilisation of coal, mineral and other natural resources

For rural development through science and technologies, the CSIR has started a unit that utilises local resources and skills, cut down drudgery particularly for rural women, generate income and employment, improve life styles by improving living environment, promote health and family welfare, improve agro-horticulture post harvest and food preservation practices.

The Council has also helped in upgrading the skills of rural artisans and draftsmen by improving their tools and products. The project in Bankura district of West Bengal and Mewat region in Haryana through the demonstration-cum-training programmes have familiarised the people with the CSIR technologies suited to local skills and needs.

Common Usage

Fabrication and low cost building materials and techniques, cultivation of medicinal and aromatic plants etc. have found wide acceptance and usage with the large number of people. The CSIR is introducing vigyan kendras in several cities in the country to give further impetus to the transfer of science based knowledge to the users and service sectors.

Over the years, CSIR has developed and disseminated technologies eminently suited for the poor sections of the society with low formal vocational training or limited skills the technique of low cost pottery and leaf cup plate making machines The CSIR technologies for drinking water like chlorine tablet, iron removal deflouridation techniques, water filter candle, low cost-latrines, toilet blocks for village schools are popular among the target groups.

Hi-Tech Areas

In petroleum and petrochemicals too, CSIR has made inroads into some high-tech areas hitherto dominated by multinational companies. The annual industrial production in this sector based on CSIR technologies is estimated to be

of Rs. 700 crore.

Precocious flowering of bamboo through tissue culture for the first time in the world, micropropagation of tissue cultured economic trees and crops like teak, sugarcane, eucalyptus, cardamom and turmeric, food production from algae, industrial alcohol production through improved yeast strains by genetic manipulation and DNA fingerprinting, the second feat of its kind in the world, are some of the achievements in the Bioscience sphere.

Cost Effective

In drugs and phramaceuticals, the council has played a pivotal role in making India not only self reliant but also a net exporter. The CSIR has two pronged strategy; developing alternative and cost effective routes for known drugs like ibuprofen and flurbiprofen (anti-inflammatory), Norfloxacin and Ciprofloxacin (anti-bacterial), S-Timolol (anti-glaucoma) AZT (anti-aids), Etoposide (anti-cancer) and Vitamin B-6.

The Council has played a decisive role in the development of leather industry in India, converting it from an exporter of raw hides and skins to an exporter of finished leather and leather goods. The CSIR maintains the world's largest specialised leather research organisation, Central Leather Research Institute. The latest achievements in this sector have been the development of environment friendly enzyme based hair depilant which is the first of its kind in the world. Automation of wet tannery operations have greatly improved quality and productivity of the sector.

The closer interactions with the user industries are being cultivated from the initial stages of R&D projects so that CSIR can develop technology packages including turn-key offers where necessary. Centres have also been established to be operated and managed jointly with industry for a more meaningful and durable partnership. The international collaboration in R&D and technology marketing is being intensified.

Forex Earnings

At present the CSIR has Science and Technology cooperation with 18 organisations of developed and developing countries. It aims at exchanging the mutually beneficial R&D activities, scientific information and facilities alongwith the exchange of scientists for working jointly on selected R&D programmes.

The CSIR, working as a flexible vibrant organisation has always provided solution to the S&T problems of the nation without isolating itself from the global developments. Its aim is to develop technologies that are globally competitive and apt for exploitation of local resources and capable of indigenising imported raw materials and components.

One of the most significant events has been its entry into the area of export of technologies and services. It has been able to export the technologies for few drugs and provide consultancy services. With these a return of one million US dollars annually in foreign exchange can be expected. Lower charges of the CSIR in technology dissemination will help in averting import of technology. It is estimated that import of technology averted would be between 2 to 5 crore per annum. □

Essay Competition

To commemorate the Centenary of Swami Vivekananda's Bharat Parikrama and his Address at the Parliament of Religion at Chicago, Yojana (English) is organising an essay competition open to its subscribers only. The theme of the essay is : Swamiji's Bharat Parikrama, the Chicago Address and the message of Unity and Amity. The essay should be of about 1500-1600 words. The participants should mention their subscription number prominently. They should write on the top of the envelop "Essay Competition". There will be three prizes viz, First Prize : Rs. 1000/-, Second Prize : Rs. 800/- and Third Prize : Rs. 600/-. There will also be two consolation prizes of Rs. 400/- each. The prize winning essays will be published in September 1993 issue.

The last date for receipt of the entries is 31-7-1993.

Problems Confronting The Indian Firms

Dr. P.S. Tripathi

SUCCESS of any organisation depends on offering quality products at competitive prices. The economic reforms and easing out of FERA restrictions in our country have made the competition global in character. In order to withdstand the pressure of competition, both from within and outside the country, the Indian firms have to pursue vigorously, the programmes for upgradation of quality, productivity and technology. The ever increasing need to augment our exports to generate additional foreign exchange resources and the growing tendency of the buyers, the world over, to shift from prices consciousness to quality consciousness make quality upgradation an urgent necessity. In fact, this is the main reason for the European market to stipulate ISO 9000 certification as a pre condition for exporters for supplying their products and services to ECM zone countries.

ISO 9000 series offer a guideline to monitor the quality management systems in such a way that uniform quality of products/services can be expected. Earlier, in the absence of any uniformly accepted standards, each country followed its own quality standards. Thus, there was a long felt need for uniformally accepted standards. To fulfil this need the International Organisation for Standards was established with its headquarters at Geneva.

The basic function of this organisation is to establish universally acceptable standards. These specifications benefit the member countries and facilitate the export-import dealings among them.

The present series of ISO 9000 (ISO 9001 to ISO 9004) embodies a rationalisation of standardisation approaches of various countries. ISO 9001—ISO 9003 series is a reference for external quality assurance and ISO 9004 is for internal quality management. Thus, ISO 9000 is a comprehensive system aimed at achieving total quality management.

Slow Progress

No doubt ISO 9000 accreditation will offer a bright prospect to the Indian exporters, facilitating their entry into the ECM and other world markets. But the process of getting ISO certification is rigorous and time consuming. By the end of the year 1992 only 24 Indian firms were able to obtain ISO 9000 stamp. The reasons for this slow progress are not far to seek. The size of the domestic market and its readiness to consume anything of any quality act as a big disincentive for the urge to become world class in quality.

The second problem confronting the firms is the complexity of the whole process coupled with high costs. Since no Indian organisation has so far been accredited as a certifying agency and members of the professional bodies like CII and FICCI, who have been trained by the foreign quality experts to act as quality counsellors or lead assessors, are only of limited help, it is expected that the whole process will consume a longer time. The problem is further confounded in case of industries like automobile where a large number of parts/components are purchased from small scale manufacturers. In such cases there is a clear need to bring these firms also under the programme of intensive quality upgradation—which will make the whole process still slower. Thus, the compounded effect of all these factors will be a slow progress of Indian firms in the sphere of quality upgradation in the near future. We have a long way to go to become world class in quality.

The author is lecturer,
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Review Article

Environment And Sustainable Development

ENVIRONMENT PLANNING : POLICY AND PROGRAMMES IN INDIA
By K.D. Saksena; Shipra Publishing House, Delhi, 1993; PP 296, Price : Rs. 320.

PEOPLE are now becoming aware of environment and ecology. Everyone is talking about the "grave environmental crisis towards which India and the world are heading. " Keshava Dayal Saksena in his book on Environmental Planning, Policy and Programmes in India defined environment as "Whatever environs or encompasses, especially one's surroundings collectively", which affect the life and development of an organism. In simpler terms, "our environment is our surroundings", including both living (germs, plant, animals, and people) and non-living (land, water and air) components of it. These components of the environment constitute the environmental assets or resources. Hence, every environmental planning should imply planned exploitation, utilization, conservation and sustainable development of these assets or resources to achieve certain short-term and long-term objectives. The short-term objectives may include meeting the immediate needs for food, fodder and fuel, as well as the need for communications and shelter of a growing human and animal population in a sustainable manner, which causes minimum possible depletion in and damage to our environmental resource base. The basic long-term objective should be to conserve, protect and develop the environmental resource base so that the genetic diversity is preserved and the regeneration of renewable resources keep pace with their inevitable loss or degradation inherent in the process of their exploitation and use to fulfil the needs of the society.

The concept of "environment" is relatively of a recent idea to the world, if not to India. It is said that it was only in 1970 when a Dutch journalist was alarmed and protested at the discharge of poisonous fluid in North Sea which killed thousands of marine life. In June 1972, within two years this protest prompted one hundred twentyfive countries to meet in Stockholm for a dialogue to find a way out from the impending destruction of environment and wildlife all over the world. However, the concept of environment has been in vogue in the Indian collective psyche from the Vedic period. In his novel "Rajarshi", Rabindranath Tagore expressed anguish over sacrifice of living animals. While delivering an inaugural speech on July 14, 1928 on the occasion of "Vrksa Ropana" (Tree planting) and "Halakarsana" (ploughing), the poet unequivocally condemned the ruthless destruction of forests and its effect on human society. He did warn that the deleterious effect of deforestation, industrialization, and mass destruction of living species would engulf the entire human race one day. In 1950, after about twenty two years later, we started observing the "Vanamahotsava" in India at the initiative of K.M. Munshi, the then Minister of Agriculture. Throughout the history, many powerful voices like this sounded the dangers of environmental degradation as it made vast stretches of land and forest waste, and left these lands drought and famine prone. In course of time prosperous societies vanished. For example, the magnificent civilization of Knossos declined due to the erosion of forest cover and it could never regain its golden Age. The erosion of top soil on deforested hills caused a sharp fall in agricultural production in the great Mycenean kingdoms of bronze age Greece. This led to impoverishment and depopulation.

Given this background, if we look at the Indian scenario now, we will be bewildered to find that in the present century this country lost millions of hectares of forest, a host of animals and millions of species due to human interference. The mining operations in different parts of country stripped off trees as well as rich top soil which is not conducive to further growth of living species. Thus we lose nearly 6000 millions tonnes of sub-soil through erosion resulting in the increase of flood affected areas from 20 to 40 hectares and other natural disasters every year. Thus, the devastation of land, destruction of forests and sub-soils are carried out in a systematic way in the name of resource utilization, supplying fuel and fodder to the weaker section and their

rehabilitation. Every year about 31,500 hectares of forests are being destroyed for fuel. As a result animal species of these areas are forced to die or leave the area due to non-availability of food and shelter. The human interference gradually led to deforestation and desertification of 100 to 150 million hectares of land is a fact.

About twentytwo years later, the Earth Summiteer assembled at Rio in June, 1992 They created a unique public awareness. In fact Rio has strengthened the undeniable links between environment and development. What India needs to define with regard to environment is the pathway of sustainable development for itself. But our entire approach to development has always been imitative of the west. We cannot have sustainable development by neglecting vast sections of our population, land and forests. We need to give highest priority to human development and environmental conservation. Mere lip service in this regard will not suffice. The ministry of environment and forests is not meant to deal with small problems like pollution. It must deal with the basic issues and causes of environmental degradation. This calls for a shift in its approach from regulative function to promotive functions like system analysis, policy formulation, awareness creation and promotion of new technology. For example, there is a greater need for a transport policy with emphasis on public rather than private transport. We need an energy policy that immediately make the maximum use of natural gas and gives priority to non-conventional energy sources. We need an industrial policy that provides for value-added and decentralised production. Water resources cannot be regarded the way we are dealing with it today. We don't have a clear cut water policy for the country of vast water resources On the whole we can say that India does not seem to have any proper perspective for environment in the Five Year Plans.

Sustainable development requires a holistic policy of more effective use of resources and a more severe accountability for the environmental and socio-economic impact of their use. There is also a need to provide necessary incentive to change and transform rather than relying more on regulatory measures, which lead us nowhere. We must recognise the fundamental issue that the development model that has produced the lifestyles of the industrialised countries and that is imitated by a "privileged few" in our country, is simply not sustainable While the west is creating its own image and crisis situation through over-consumption and exploitation, the Indian civilization which once based on balanced environmental conservation is trying to follow the former to usher in a doom's day. Hence without a clear cut holistic policy of environment and sustainable development, the country stands on the brink of disaster. At the conceptual level it is important to appreciate that our country has extremely diverse ecosystems. Within the same country, for instance, there is the hot desert of Rajasthan, the cold desert of Ladakh, and some of the highest rainfall region in the world. The same kind of land-use, and the same kind of bio-mass production is not feasible in all these ecosystems on a sustainable basis.

We need to respect the respective ecosystems all over the country and not the wanton destruction. For this what we require is a unified approach towards the total environmental resources of the country. Today, control of almost half of our land is fragmented amongst multitudes of Central and State Government departments. The result is chaos and a free-for-all on the ground, ecological destruction and declining productivity. The revenue lands are controlled by the revenue departments; forest lands are controlled by the forest departments, waste lands are controlled by the wasteland departments, etc. Each department has its own set of complex rules and regulations which are easily defeated and flaunted. The coordination between various departments are a sine quo non. But planning today is sectoral and fragmented. For instance, the wastelands department is interested in trees only and not water, and the department interested in water is not interested in tree. Moreover, the irony of plethora of bureaucratic rules and control is such that if a poor villager plants trees on revenue lands, he/she could be fined for trespassing. And the villager who planted trees on forest land could even be fined under existing laws. Thus afforestation needs appropriate institutional mechanisms. Trees have to be planted and protected by the people but for this to happen, the Government must overhaul the present institutional structures to make these participatory. It is increasingly becoming clear to everybody that India's vast environmental resources cannot be managed by centralized bureaucratic departments who tried to do everything from building factories and roads to planting trees and shrubs. The need of the hour is revival of democratic village level institutional structures that can control their own natural resources based on sustainable development.

Keshava Dayal Saksena is an Adviser, Planning Commission and a scholar in his own right. His book is an outcome of an assignment he had with the. Food and Agriculture Organisation of the United Nations in June 1991. He is quite right when he says that India never had any perspectives on environmental Planning for more than two decades

after Independence. The environment issues were explicitly recognised only in the Fourth Five Year Plan (1963-73). This Plan document recognised the "inter-dependence of living things and their relationship with land, air and water", and the need for harmonious development which is possible only on the basis of comprehensive appraisal of environmental issues, particularly economic and ecological. It was felt necessary "to introduce the environmental aspect into our planning and development". The "Sixth Five Year Plan 1980-85—A Framework" for the first time devoted one full section to "Ecology and Environment". The document recognised the "imperative need to carefully husband our renewable resources of soil, water, plant, and animal life to sustain our economic development". It also expressed concern on the wide scale depletion of natural resources and the deterioration it has caused in the quality of life of the people. The document concluded that "the situation calls for a bold new approach to development which will be based on techno-environmental and socio-economic evaluation of each development project". Hence, since the period of Sixth Five Year Plan, environmental issues were taken care of. But planning has been somewhat piece-meal, fragmented and scattered. The issue of environment has not yet been able to carve out a separate niche for itself in all the State Plans.

The author analyses in his book comprehensively the process and problems of environmental planning, including the State Planning, and the constitutional, legal, institutional and policy structures created for such planning in India. The study deals with environmental problems related to land mass and land use, pollution and other hazardous substances at length. He identifies the various programmes so far implemented to tackle for wasteland development, forest conservation, wild life protection, pollution control, management of poisonous substances, environmental education and information dissemination, environmental research and training including the forestry training. These are very methodical and systematic. The work contains a special analysis of the environmental problems and programmes related to hill areas, islands, agroclimatic zones, bio-sphere reserves, wet lands, mangroves, and coral reefs, urban regions and coastal areas. He also highlighted the concepts and procedures involved in Environmental Impact Assessment.

Dr. M.C. Paul

Contd.... from page 8

No doubt there will be widspread disappointment among the fixed income groups of people who had virtually persuaded themselves to believe that the Finance Minister would come up with a handsome reduction in personal income tax. The corporate sector also had hoped for considerable tax relief in terms of the Chelliah Committee recommendations which, in principle, the government has accepted

Except for a marginal gesture of raising the standard deduction limit from Rs. 12,000 to Rs. 15,000, the Finance Minister has made no changes in the tax structure His inability to do so seems due in large measure to the constraints of resource limitation.

However, not to be unkind to Dr. Singh, it must be pointed out that his budget takes some care, though a wide range of reduced customs and excise duties, to ensure that if tax payers have been denied a larger carry-home pay packet, at least the housewife should find herself spending no increased prices (perhaps a lower price) for a variety of consumer goods.

It is best to assess Dr Singh's budget by keeping in mind that the principal thrust of his exercise is to boost growth, and avoid being populist. If in the midst of a corrective phase, the people at large do not benefit from the budget, it should be more than compensated by the benefits that would accrue in the long run. Viewed in this perspective, the Finance Minister's proposals make eminent sense.

Dr. Singh's third budget in a row is a part of structural adjustment he embarked on a year and a half ago. The strides are not spectacular, but his confidence remains unshaken. There have been some disappointments in his budget, such as the one for income tax payers and those who wanted to save for a rainy day. These, perhaps, would be overcome if the high hopes raised are fulfilled in the coming years. □

Book Review

JAPANESE MANAGEMENT AND THE INDIAN EXPERIENCE : By Bhaskar Chatterjee; Sterling Publisher Pvt. Ltd., L-10, Green Park Extn., New Delhi; pp 112; Price Rs. 50.

Much has been said about Japanese Management in the recent years, especially after the exceptional success of the Japanese in the realm of trade and commerce through technological competence and there is no dearth of literature on the subject. In fact, everyone has got something to say about "The Japanese Management Technique"

A considerable amount of research had gone into the making of this book. A complete chapter has been devoted to the study of the evolution of the Japanese Management system over the years. The impress of the politico-social and socio-economic successions on the Japanese social fabric and the value systems that have trickled down the layers of time and laybrinths of collective Japanese psyche and decanted into the "Management Ethos" of the Japanese over the years is described in detail.

The democratic bottom-up approach, corporate discipline, employee security, and open communication channels are singled out as cornerstones on which the edifice of japanese organisational culture stands. The reader is then taken on a detailed detour to Maruti Udyog Ltd. and one gets a feeling of being transported to the shop floor or assembly line of Maruti Udyog. One gets a feeling of actually "being there".

The operation of successful absorbtion of the Japanese practices in the Indian corporate mileu, the problems, the constraints, the agonies and the ecstasies, the blendability or otherwise of the oriental practices in an accidentally dervied Indian corporate culture have been dealt with. It has something of interest for administrators as well.

T. Vijaya Kumar

RURAL DEVELOPMENT : PROBLEMS AND PROSPECTS : By E.D. Setty, Inter-India Publications, D-17, Raja Garden, New Delhi; pp 212; Price : Rs. 195.

One of the most widely discussed topics in the literature on development is that of rural development. The book under review is a timely contribution in the sense that recently the authorities in India have also started giving priority to rural development.

The book is a collection of 14 essays, written by the author from time to time starting from 1980 to the present time Out of these as many as 9 have already been published in both India and abroad.

Essays 1, 2 and 3 present characteristics of rural communities and implications for development. Essay No 4 gives a very lucid analysis of field approach to integrated rural development The next three essays (5, 6 and 8) are devoted to extension services being conducted at various Asian Universities and how extension education is of help in agricultural marketing. The 7th essay relates to rural sanitation and emphasises the need for a perspective plan in the field of sanitation. Essays 9 and 10 can be characterised for presenting certain specific features of village community. The author has very scientifically analysed the consequences of technological change and emphasises the fact that more and more effort should be directed to rural sociological research which should probe the consequences of technological change rather than the antecedents of innovation. The author has very ably analysed the various aspects of rural industrialisation and entrepreneur-ship, particularly among women. The next three essays deal with various facets of entrepreneurship with reference to rural areas. The concluding essay presents some lessons.

The author has rightly concluded that political will, clearcut policies, realistic objectives, effective organisational and institutional linkages, a blending of planning from above and below, enlightened involvement of the client systems, building up and strengthening of local institutions, training, implementing programmes with seriousness and continuous evaluation of the programmes would facilitate meaningful and sustained rural development. Rural development includes agricultural development and there is some truth in the widely held belief that agricultural development is a precondition for our overall development.

If we are really interested in rural development we must recognise the role of agricultural universities and extension services in supporting farmers. Technology, training and trade are areas where there is need for considerable fine tuning of approaches to suit specific socio-economic and agro-ecological conditions. Dr. Setty has highlighted the need for developing entrepreneurship among women. Each essay in the volume could be read as an independent and exclusive unit; however, all the fourteen essays taken together form the themes, approaches, methods, issues, problems and programmes, germane to rural development. The book will be of particular use to the policy makers, planners, administrators, extension agents who are involved in the task of improving the conditions in rural areas. □

Dr. Sharawan Kumar Singh

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BUDGET ANALYSIS

A Landmark Budget

Dr Nitish Sengupta

In many respects India's 1993 budget can be called a water-shed in the history of India's budgets. Not only have both budget deficit and fiscal deficit been substantially reduced, but for the first time the deficit is projected to be met not from new tax proposals but from better efficiency in the collection of the existing taxes. Also by reiterating India's commitment to the irreversible path of reform and economic adjustment, this budget has given a clear signal to the nation and to the world, a signal that many thought would not be forthcoming in the context of the possibility of a populist budget on the basis of the further possibility of yet another mid-term election. Then again, through the attempt at industrial regeneration and revival through substantial relief being granted in the excise levies on wide spectrum of industries including consumer goods, this budget has set altogether a new trend, missing from conventional budget making for a long time.

The biggest plus point of the 1993 budget is that it reaffirms our nation's commitment to economic recovery, structural readjustment and reform, and also gives a very big push in that direction. Nothing in the long run is more important for the common man than the assurance of continuing stability, certainty, accelerated growth and prospects for a glorious tomorrow. The budget gives such an assurance and does it, in a way, few budgets have done in the past. Those with a traditional mind-set may feel disappointed that there has been no change in the corporate taxation structure and only very marginal change in the personal income tax structure. Surely, the budget has not significantly reduced common man's direct tax burden except raising, in the case of salaried persons, the standard deduction on earned income by Rs 3000. The promised removal of the surcharge has not come. But once we get away from the stereotyped mind-set, it is easy to see how the very substantial, often spectacular, reduction of the central excise levies on a very wide variety of consumer durables starting with essential articles of every day use like tea, coffee, biscuits and vanaspati and ending with so-called luxuries like air-conditioners and refrigerators, will directly and indirectly benefit the common man in a way no budget has done after Independence. Name any of the consumer durables of everyday use and you will see it is there in the list. Tea and coffee have been completely exempted. On vanaspati, duties have been reduced from Rs 1900 to Rs 1500 per tonne, on electric fans from 17.25 to 10%, on coolers from 23 to 10%, on specified domestic electric appliances from 23 to 15%, on radio sets from 23 to 10%, on plastic moulded luggage from 34 to 25%, on mattresses and bedding articles of cellular rubber from 69 to 30%, on colour T.V. sets by Rs 1250 to Rs 2200 per set. A natural question will be whether the producers and the sellers will pass on this benefit to the consumers. It is the moral obligation of businessmen to ensure that this is done in the long-term interest of business itself. But, unlike in the past, they will no longer operate in a 'monopolistic sellers' market. People will have the choice of buying similar products cheaper from other competitors, no longer prohibited by a pernicious industrial licensing system. Also, there could be imported goods which could flow freely encouraged by the substantial import duty reduction.

Domestic industry should therefore be careful that it in fact makes these goods cheaper by passing on duty relief to the customers. This wide-ranging duty reduction aggregating to a revenue loss of Rs 4522 crore, will greatly stimulate demand and accelerate industrial recovery which, in its turn, will step up the growth of GDP and employment. One of the pressing concerns in recent times has been the pervasive demand recession in most industries. This budget rightly makes a frontal assault on it. The significance of revival of demand in industries such as automobile, tractors and two-wheelers, electronics and petro-chemicals etc is obvious. Another significant step is the excise relief given to cosmetics, toilet products and health care articles, for

the first time after Charan Singh's 1979 budget imposed savage excise levies on them and, for practical purposes, took them out of common man's reach. The 1993 budget will not only return these within common man's reach but will also stimulate growth in these industries.

A substantial reduction of customs duties on a wide range of articles, along with full convertibility of rupee on trading account will also be welcomed by common people who, for a whole generation, had no access to some of these imported articles and will no longer be tied down to the tyranny of sub-standard domestically produced articles which were protected in a sheltered economy. Competition will no doubt make for efficiency, cost control, better design, quality assurance and after-sales service. The advent of full convertibility of the rupee on the trading account is a much needed timely step which will sweep away a whole set of distortions and aberrations-cobwebs to which a whole generation has become accustomed. The experience of partial convertibility introduced last year has shown that, by and large, rupee maintained its strength in relation to all major world currencies. Surely, full convertibility will carry this process to its logical conclusion. Rupee will be eventually strengthened through better export and higher foreign funds flow into the country. The Finance Minister has no doubt taken a big gamble by placing his trust on India's potential for a breakthrough in export. This is the main thrust of the macro-economic policies. It is for Indian industry to justify this trust. In the long run, nothing is more important for making the rupee strong than building up an efficient industry and export capability. Surely, this budget has tried to create conditions for that. A floating rupee will bring out true accountability and efficiency and, to that extent, higher exports and GDP growth in the long run. There may be some problems for the common people in the immediate future on account of higher prices of petroleum products which full convertibility may impose. But this will disappear in the long run. Higher prices will also impose better and more realistic consumption discipline. Happily, the world crude price is currently on a downward trend. Going by the example of Thailand which removed exchange control and permitted full convertibility of its currency only a few years ago, there is no ground for pessimism. Thailand has never regretted its decision. Her economy has become many times stronger since then. Pakistan's example also supports this.

Good Conditions

Full convertibility should enhance inflow of capital into India, first by getting non-resident Indians to send their remittances through official channels which will now give them the true value of their remittances, rather than through the underground *hawala* route, and, secondly, by encouraging a higher inflow of foreign direct investment through the confidence that this budget will create abroad that India will continue to be a good business destination where their investment will be safe and will promise a good return. Much depends on the prospects of the owners of the huge unaccounted-for funds kept abroad, bringing those funds back as legitimate foreign exchange into the country. The new budget has surely created good conditions for such repatriation. The substantial reduction of tariff on capital goods and machinery should also help industry to cut down on the cost of production and make their goods internationally competitive. While there has been a substantial lowering of tariff on capital goods, the Indian capital goods manufacturers have been compensated by a rationalisation of the duty structure and downward reduction of the duty on components and other essential inputs like non-ferrous metals. The lowering of the interest rate by 1% and on export credit by another 1% will also be a big boost to industry.

Along with providing relief to the middle and lower classes through wide-range relief in excise duties, the substantial increase of 32% in the annual plan investment is a welcome step. In the Indian context reduced Plan outlay necessarily means reduced Government expenditure which again means shrinking order books for companies and demand recession, retrenchment, lay-offs and unemployment of working people. These tendencies, somewhat evident in the context of the current years's reduced plan outlay, will be check-mated to the extent the annual Plan outlay is being stepped up by 32% implying a rise in the level of Government purchases. Along with this rise in the Plan outlay, the Finance Minister has susbstantially raised the outlay on rural development, employment, generation programmes, and also social sectors like health and education. These will also bring multiple benefits to common people. He has therefore answered the criticism that the structural adjustment programme lacks human face. Increased Government spending on infrastructure, rural development, health, education, agriculture, rural industrialisation and food processing will no doubt substantially help the common people, specially those in the rural areas.

Thanks to the appearance of a near balance between total receipts and total expenditure in the revised 1992-93 figures, the 1993-94 budget estimates envisage a budgetary gap on only Rs. 4314 crore (as against Rs. 7202 crore in the previous year) and the substantially reduced fiscal deficit at around 4% of the GDP. Unlike in the past, he has not

attempted to make up the budget deficit through new tax proposals but has promised to close this gap by ensuring better tax administration more effective compliance and recovery and expanding the tax net to cover newer sections of the people. This is another aspect where the budget has departed from the traditional mind-set. Indeed, much can be done in these areas. It is time the vast army of income tax personnel divert their time and energy from harassing the existing taxpayers to identifying and covering new class of tax payers, whether in the urban areas or in the rural areas.

Incentives Needed

Last year the presumptive tax was imposed on shopkeepers. One would like to know how effective this proposal has been in its implementation. An effective drive to bring in more people in the direct tax net and unearth black money will not only wipe out the uncovered deficit in the budget, but might lead to revenue surplus. The percentage of direct taxes in the Central Government revenue collection has been steadily declining over the years and is negligible now. It is time this tendency is reversed. It is hoped that serious attempts will now be made towards a drastic reform of the direct taxes system providing for lower rates, reduction of exemptions and more extensive coverage. While on the subject, one would request the Finance Minister to consider giving some thought to providing some more tax relief to the salaried sections severely hit by the phenomenal price rise in recent years. Incidentally, something that one misses in the entire budget is any proposal for encouraging savings. One is afraid that, in the context of the revealed figures on public savings in the Asian Pacific countries, including close to 40% by the Chinese people, we in India can no longer take comfort from our savings rate which has reached a plateau. True that an investment oriented budget should normally lead to savings, but savings devices and instruments are also needed. Finance Minister might consider giving some more incentives in order to accelerate saving habits by our people.

Also missing is any clear direction as to how substantial redution in Government's burgeoning consumption expenditure is to be brought about. The economic survey promised some steps in this direction. The budget has belied those promises. The least that the budget could have done in this direction was to accept some of the proposals of the N.D.C. Sub-Committee on austerity headed by Shri Biju Patnaik.

Taken together, after balancing both the pluses and minuses, one should congratulate Dr. Manmohan Singh on bringing out a refreshsing budget which departs from many of the traditional approaches in our budget making practices in the past and breaks a number of new grounds. For the first time, it seeks to give a clear push to the growth of industry and investment and, by that very fact, spur economic activities and growth impulses. These will surely help the common people in their struggle for improved standard of living and better quality of life. In the last analysis it is over-all growth higher than the budget projections which alone can lift the nation by bootstraps from poverty. This budget is surely an exercise in that direction.

No doubt the absence of any substantial direct tax relif has disappointed conventional budget watchers. These include operators of stockmarket who were expecting a lot of taxation reliefs and had raised high expectations. But once we can grow out of this conventional mind-set and view the budget in its entirety, no serious observer will fail to notice the unconventional but imaginative attempt to stimulate and regenerate industrial and economic activity by increasing demand In the long run it is this high level of economic growth at a rate much higher than the budgetary figures which alone can lift up India's economy. The budget is investors-friendly and industry-friendly but perhaps operators-unfriendly ! □

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BUDGET ANALYSIS

Some Plus Points, Some Minus Ones

Dr Malcolm Adiseshaiah

ACCORDING to the statement introducing the budget the basis of the budget is two fold. The first is : the achievement during the last 12 months of the Government. The achievements include the control of inflation which was above 17 per cent in July 1991 brought down to the low 7 per cent at present (but this is not evident); the improvement in our external position (which is again not very visible), the restoring of international confidence (which is not yet evident as not one international commercial loan has been obtained), the growth of the economy from a very low 1.2 per cent in 1991-92 to an expected 4 per cent in 92-93 (which we all hope will be realised).

The other basis on which the budget rests is with regard to the priorities set forth in the budget statement. These priorities range over a wide area, covering stimulating agriculture, slowing down inflation, further promoting export growth so that there would be a large inflow of export income which will make the BOP more manageable, the using of resources released in this budget through reduction of taxes and using the released resources to give a fillip to development expenditure in 1993-94, and to make further progress in tax reform, making the tax system simpler and more transparent. On this basis, the budget presented has many plus as well as minus points.

The major plus point of the budget is that it is quite clear in what it proposes and what it disposes. This has not always been so in the past budgets which had tendency to fudge the important issues. This is not so in the budget for 1993-94.

The other plus point is that at long last there is some real provision for agriculture which has been completely neglected in the new economic reform programme and the structural adjustment policies of the last two years. Now agriculture is given a fillip through many proposals on prices to farmers, credit through NABARD etc., though the major emphasis of these provisions is at large and medium farmers and not the small and marginal farmers who are the majority.

A related plus point is the new emphasis on rural development which receives an increased allocation of over Rs. 5000 crore, which is a sharp step up of over 60 per cent over the provision made for it last year. As a result, it is expected that there will be more employment generation and higher capital formation in the rural areas.

The increased provisions made for the social sector is another plus point. The social sector covers health, nutrition, education, rural drinking water supply, child and women's welfare, science and technology. There is an attempt made in this budget to compensate these vital areas for the squeeze they suffered in structural reform programme for the last two years. This is essential and should result in improved human resource development.

Another plus point to be welcomed is the strengthening of SEBI which will result in the protection of all investors, particularly the small investors, and which will make the share and stock market more orderly, more transparent and make it a little more difficult for future scams to be unidentified for a long time.

Neutral Issues

The Rs. 5200 odd crore of tax reduction in customs and excise is in the neutral category, being neither in the plus nor minus category because of the following issues. First of all when the reductions were announced, the common man thought that this meant lowering of prices of the commodities. People did not realise that what was reduced is the customs and excise and that we have a long way to go before this is translated onto reduced prices. From this point of view, it is a good thing to learn about the lowering of the prices of cars by the Automobile Association and it is hoped that this will be extended right through to all prices benefitting from the reductions.

Now the Rs. 5240 crore which has been given away by the Government, which incidentally is the first time the Union Budget has not given birth to the newspaper headlines that so many thousand crore rupees have been gathered

additionally through further increase in taxes, this time there has been no increase in taxes. This give away Rs. 5200 odd crore raises the question, to whom it been given away ? Has it been given to the wholesalers who will increase their margin ? Or has it been given to the producers so that they can increase their profit and increases the scale of their production ? Or it been given to the consumers ? This is still to be worked out. The Government has stated that if the benefits from lower taxes are not passed on to the consumers, it will take very drastic measures. It is not clear what measures the Government has at its disposal to enforce this threat.

Another neutral issue category is the full convertibility of the rupee. Incidentally, the question arises in my mind as to what were the factors which led the Government to change its stand set forth in the introductory chapter of the Economic Survey, where the flat out statement is made that the convertibility of the rupee has to wait for some two to three years. Some three weeks later the budget statement begins with the announcement on full convertibility of the rupee on trade account as from 1. 03.93. This change could not have been due to the surge of exports and a large inflow or export incomes which enables the Government to introduce the full convertibility. This has not happened in the intervening three weeks between the finalising of the Economic Survey and the budgetary statement. All the arguments used in the budget statement for the full convertibility of the rupee were present also three weeks earlier when the introductory chapter of the Economic Survey was written.

Turning to full convertibility, the major question is whether it will push up the import cost of crude petroleum products and fertilisers, which will now have to be paid for with foreign exchange obtained at the full market rate. The Government has stated that there will be no rise in prices of crude and petroleum products and other bulk imports because of the surplus in the Oil Coordination Account which will be used to dampen any rise in prices and because the international prices of crude oil are ruling soft. These two factors are true but they are certainly short term factors and should not be relied on for any long term benefits. I think we should be prepared this year for a rise in the prices of the bulk imports and to that extent to see pressure on prices and resumption of some increase of inflation.

Minus Points

One minus point to the high revenue deficit in the budget caused by increases of or non reduction in non plan, non-development expenditures. I have, for over a year now, repeatedly suggested that for atleast the coming year all vacancies in the Central Government should be frozen and not filled. This would bring down the revenue deficit sharply by some Rs. 2500-3000 crore, and to that extent reduce the pressure on prices and on Government resources.

There are other minus points which need attention. There is a discrepancy between the receipts set forth in the budget 1993-94 which in terms of revenue receipts are shown at 31,000 crore and the figure in the budget at a glance at Rs. 27,727 crore. This should be rectified and clarified because it is important in relation to the calculation of the money available to the Government for reductions and resource allocations.

Further the central plan is increased by 32 per cent in the case of the 1993-94 budget, while in the revised budget it is 28-29 per cent increase and this also should be reconciled.

Another small issue is that the promises made in the budget need to be followed up and implemented. Already in the two budgets that have been presented, there are atleast 8 promises which are still unfulfilled. I will just take two examples. The small farmers agri-consortium is still a nonstarter. Again the presumptive tax on which so much reliance has been placed, has only provided Rs. 600 crore in 1992-93, and despite the failure of this instrument, the 1993-94 budget has extended it to small transport operators. Hence, the means for the implementation of the promises made must be set forth quickly.

Another minus point. The repeated emphasis on globalisation of the Indian economy, on making our economy a part of the global economy, seems to me to be somewhat irrelevant. It is irrelevant in the context of our not attaining even a minimum of self reliance in our industry, in our services, in our economy. In our employment generation we are lagging very badly and we still have over 400 million according to my studies, over 250 million according to the Government, going to bed hungry every night. It is thus employment generation, poverty alleviation which are our priority, not making the Indian economy part of the global economy.

Finally, it is regretted that the budget continues the bad practice of disinvesting public sector equity, which is being done again in 1993-94 to the extent of Rs. 3500 crore. This is bad, because it is eating into our capital which should be avoided, unless we are faced with complete indigence in the economy, which we are not. □

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BUDGET ANALYSIS

Focus On Growth, Exports And HRD

S. Sethuraman

THE Union Budget for 1993-94 marks a bold, unparalleled fiscal exercise with its massive tax relief to move the economy out of stagnation and a substantial step-up in development expenditure focussed on agriculture, rural employment and vital social services like education and health. The Finance Minister, Dr. Manmohan Singh, has boldly responded to the crying needs of the economy even if the process of fiscal correction and macro-economic stabilisation has to continue in the third year of India's structural adjustment and reforms programme.

There can be no adjustment without pain, he had said in 1991 adding that his effort would be to minimise the burden on the poor and give the adjustment a "human face". Fiscal restraint of the last two years has certainly helped to improve the resource position so that, somewhat sooner than expected, Dr Manmohan Singh has been able to give greater attention to anti-poverty and social sector programmes.

Inflation was the major concern in 1991-92, because it hurts the poor the most but adjustment policies, involving cuts in public expenditure so far, have paid off in terms of halving the annual rate of inflation from over 16 per cent to around 7 per cent and keeping external payments at a manageable level. The GDP growth which declined to 1.2 per cent in 1991-92, the year of squeeze on imports and credit dictated by the need to restore some balance, has picked up to around 4 per cent in 1992-93. The economy would have bounced back to stronger recovery but for two severe setbacks—the security scandal affecting investments and the gory aftermath of the Ayodhya episode—hitting production and export.

Unique

The 1993-94 Budget, unique in many ways, seeks to put economic and social development firmly back on the national agenda so as to move away from, as the Finance Minister puts it, "obscurantist preoccupations and sectarian divisions." There is broad consensus in the country that India cannot remain marginalised in a rapidly integrating global economy. What India needs is both strong and sustained growth in output of goods and services as well as steady uplift of millions of the poor and underprivileged.

The priorities underlying the Budget are to bring down fiscal deficit further to 4.5 per cent of GDP from a little over 5 per cent in 1992-93; to promote a strong industrial revival; to move toward a simpler tax system, with moderate rates and much greater focus on compliance; to give full support to agriculture and agro-processing industries for increasing employment and incomes in rural areas and strengthen social services like education and health; and to achieve a rapid growth in exports in order to be able to manage the balance of payments without prolonged dependence on exceptional financing from abroad.

The deep cuts in import tariffs, as part of trade policy liberalisation, coupled with unexpectedly large excise duty reliefs, should give a major boost for industrial revival and make Indian goods more competitive. Having given away over Rs. 4500 crore of revenue to help speedy economic recovery, the Finance Minister has had to put off corporate tax reforms till next year. The plan outlay stepped up by 32 per cent, would have been at risk if he had attempted restructuring of both direct and indirect taxes in a single budget. He considered the indirect tax area to be more critical for stimulating the economy at this stage and expects the substantial revenue loss to be made up by larger receipts from both customs and excise. Additionally, he has lowered the minimum lending rate for producers. Reduced excise and interest rates should help to bring down costs for the industry and prices for the consumers.

Dr. Manmohan Singh has accepted the broad thrust of the recommendations of the Tax Reforms Committee headed by Dr. Raja Chelliah for a regime of moderate rates though he has not moved toward the pattern of simplification proposed by the Committee in this budget. He needs time to consult the States before moving to a Value Added Tax System (VAT). The enthusiastic welcome given to the Budget by trade and industry is qualified by a sense of disappointment that the corporate tax has not been lowered at least to 45 per cent. The Finance Minister is

conscious that more needs to be done to promote investment-related savings and, for the present, he has only raised the standard reduction from salary income from Rs. 12,000 to Rs. 15,000.

The Finance Minister has certainly taken a plunge with his decision to allow 100 per cent convertibility of foreign exchange earnings at the market rate as a big incentive for exporters. Banks have been asked to reduce the interest rate on rupee export credit and in turn the interest tax payable by them would be waived in the case of export credit which would go upto 10 per cent of their total advances. The unified exchange rate, in place of the dual rate introduced last year, would secure larger flows of foreign exchange into official channels but a floating rupee would have its implications on stability of the exchange rate, balance of payments and domestic prices.

Production and exports apart, the Budget provides a strong fillip to development expenditure both for infrastructure, programmes of poverty alleviation and rural development as well as the social services. It is here that one would have to see how far the Government has gone in insulating the poor and unorganised sections of labour and other weaker sections of people from the harsh burdens of adjustment. Certainly there has been no significant scale of retrenchment with all the radical changes in industrial policy.

The Government has not arbitrarily forced any 'exit policy' down the throats of workers but has instituted mechanisms including the National Renewal Fund as a social safety net to ensure that workers displaced in totally uneconomic units facing closure are given adequate compensation and that they are also given retraining and redeployed wherever possible. The NRF is also to be utilised in job creation schemes because what this country needs is more and more employment and at the same time greater productivity from the existing work force, which is all the time conscious of its rights and privileges. There has been no large scale privatisation leading to mass unemployment as was assumed by some politically articulate sections.

Protection

Far from being reduced the food subsidy has been increased since 1991-92 and the public distribution system has been strengthened though the Government has to do a lot more to see that the benefits go only to the vulnerable sections of people. The farmers have been adequately compensated for the rise in fertiliser prices.

Above all, the sharp down swing in inflation, especially in prices of food grain and edible oils, should benefit all sections of the people. It is true that fiscal contractions leading to a reduction in public expenditure tend to slow down growth and employment, especially in the public sector. In the light of experience of developing countries going through similar adjustments Dr. Manmohan Singh has acted in time to ensure that the programmes of direct intervention, designed to help the poor, are strengthened.

Budgetary resources determine the pace of progress in rural development and in social sector such as elementary education, primary health care, safe drinking water and sanitation at affordable price. While the State Government has a special responsibility in these areas, the Budget sends out strong signals to the States that structural transformation of India's economy must penetrate to the rural areas.

It is also Government's policy to free agriculture, while assuring farmers of remunerative prices for crops, from movement and other restrictions and ensuring adequate credit and enabling it to enter the global market, as much as industry, to reap the gains from a competitive environment.

The Budget also maintains the pace of reforms both in regard to financial sector where the State Bank of India and other leading nationalised banks are being enabled to have access to capital market to strengthen their capital base, without Government giving up its majority control, and in regard to foreign investments, which are badly needed in the development of capital-intensive energy sector, so that the country's onward march is not thwarted by infrastructural bottlenecks when China and other East and South-East Asian nations are forging ahead. □

BUDGET ANALYSIS

Stress On Reform Of Tax Structure

Dr. B.B. Bhattacharya

THE Union Budget for 1993-94 has many distinctive features. The Budget reduces customs and union excise duties by Rs. 4,522 crore, which is perhaps the biggest tax cut in India's fiscal history. The budgetary deficit target of Rs. 4,314 crore, if realised, would be one of the lowest as a ration to GDP in the last two decades. The dual exchange rate is abolished. All foreign trade—both exports and imports, including Government imports—will be now transacted in market exchange rate. Gross fiscal deficit as a proportion to GDP will be further lowered from about 5 per cent in 1992-93 to about 4.8 per cent in 1993-94. Plan expenditure is stepped up significantly, with increasing share in allocation for agriculture, rural development and physical and social infrastructure Non-plan expenditure, other than interest payments, is projected to fall by 6 per cent in nominal value and 14 per cent in real value. Interest rates on bank deposits and advances are lowered by one percentage point. Five year tax holiday is announced for private investment in power plant and all investments in hilly and other industrially backward States. Provision is made to augment capital base of nationalised commercial banks. Finally, export is given further incentives. However, contrary to general expectations, the Budget has not reduced direct tax rates.

When the stabilisation and the structural reform programme was initiated in July 1991 the economy was in a bad shape. The inflation rate on a point to point basis climbed to 17 per cent. The balance of payments situation was precarious. The foreign exchange reserve was down to about $ 1 billion, which was worth about 2 weeks' of imports. There was a serious problem of servicing external debt. Internal debt was also a serious problem. Gross fiscal deficit of the Centre as a ratio to GDP was more than 8 per cent, both revenue and monetised deficit rates above 3 per cent. Compared to that the current situation is somewhat better. Inflation rate, on a point to point basis, has now decelerated to 7 per cent. Foreign exchange reserve has risen to above $ 5 billion. Centres' gross fiscal deficit rate has come down to 5 per cent.

However, contrary to the optimistic view expressed in the Budget Speech of the Finance Minister and in Economic Survey, the situation is far from normal The average inflation rate in 1992-93 fiscal year is still above 10 per cent against 14 per cent in 1991-92. What is more disturbing is that despite five consecutive normal/good harvest, a very tight monetary and fiscal policy and a comfortable foreign exchange reserve the inflation rate has not come down substantially. In the past under similar circumstances the inflation rate came down to 4/5 per cent. The present inflation rate is almost twice of that, which means that the inflationary expectations are not yet subdued.

The foreign exchange reserve has not increased due to an improvement in trade balance. Despite a steep devaluation and a squeeze on imports dollar exports growth rate is well below dollar imports growth rate. The recent increase in foreign exchange reserve is almost wholly contributed by fresh external borrowings and foreign exchange remittances scheme, which cannot be repeated every year. Total external debt has now climbed to almost $ 80 billion and debt servicing has risen to $ 8 billion a year. The improvement in balance of payments situation ought to be regarded as temporary rather than permanent

GDP growth rate in 1991-92 fell to only about 1 2 per cent. Agriculture and industry recorded negative growth rates. The official projection for GDP growth rate in 1992-93 is about 4 per cent. While agricultural prospect appears to be good, the industrial situation as of now is not bright. Both public and private investment rates in 1991-92 were lower than in 1990-91. The fall in real public expenditure, especially plan expenditure, in both 1991-92 and 1992-93 has adversely affected employment. The recent deceleration in inflation rate is a reflection of the fall in purchasing power of poor people. Net capital inflow from abroad might have increased in the

last two years. But as of now there is no perceptible change in productivity and technology. In short, there is no clear sign of improvement in the growth scenario in the last two years.

Plan Outlay

One of the positive features of this Budget is that it has stepped up plan outlay. 1991-92 and 1992-93 Budgets reduced gross fiscal deficit rate mainly by cutting plan outlay. Central plan outlay in 1991-92 was 10 per cent lower than 1990-91 in real terms. 1992-93 Budget increased Central Plan outlay, but in real terms, it would be more or less the same as in 1990-91. 1993-94 Budget allocates Rs. 63,936 crore for Central Plan, which is 29 per cent more than the revised estimates for 1992-93. Central Plan outlay for agriculture and rural development is increased by 28 per cent, energy 33 per cent, transport and communication 30 per cent, industry and minerals 20 per cent and social services 24 per cent.

Out of Rs. 63,936 crore, the Government will mobilise Rs. 23,241 crore through budgetary measures. The remaining Rs. 40,695 crore is expected to be mobilised through internal and extra budgetary resources of public enterprises, which is more than the Rs. 30,085 crore in revised estimates for 1992-93. The real burden of resource mobilisation would, therefore, shift from taxation and Government borrowings to administered pricing and market borrowings of public enterprises. This may lead to two problems. First, administered price hikes will increase cost structure. Second, while some public enterprises may be able to borrow adequate amount from the market, many others may not. The actual Central Plan outlay, therefore, may be less than the budget estimates.

In the past actual deficits were invariably more than the budget estimates. Gross fiscal deficit in 1993-94 is budgeted to be Rs. 36,959 crore, which is almost the same as revised estimates for 1992-93 i.e. Rs. 36,722 crore. In real terms, therefore, gross fiscal deficit in 1993-94 is expected to be less than in 1992-93. Unlike the last two budgets, this Budget aims to cut gross fiscal deficit by reducing non-plan rather than plan expenditure. Non-plan expenditure, other than interest payments, in1993-94 is budgeted to be Rs. 52,072 crore, against Rs. 55,253 crore in revised estimates for 1992-93. Even if we assume a modest inflation rate of 7 per cent, non-plan expenditure, other than interest payments, in 1993-94 is expected to be 13 per cent less than 1992-93 in real terms, which appears to be a stiff target. It may be noted that despite a strict watch on expenditure, revised estimates of non-plan expenditure, other than interest payments in 1992-93 is almost Rs. 3,000 crore more than budget estimates. The control of Government expenditure in 1993-94 would be even more difficult because the Government import will henceforth have to be paid for at the market exchange rate, which is presently about 25 per cent higher than the official exchange rate.

It is interesting to note that while Centre's non-plan expenditure on general services is stipulated to increase by Rs. 293 crore, Centre's non-plan grants and loans to States and Union Territory Governments would decline by Rs. 450 crore and Rs. 440 crore respectively. Centre's budget may, therefore, improve at the expense of States' budgets. Central assistance for State and Union Territory plans would however increase by Rs. 671 crore.

Tax Concessions

The budget reduces customs on a wide range of commodities. Customs on most capital goods would now range between 10 and 35 per cent. The average effective import duty in 1993-94 may come down to less than 50 per cent. The fall in the customs duties would be partially compensated by rise in market exchange rate. Excise duties are reduced on a number of consumer goods, particularly consumer durables, which are suffering from recession. The direct tax structure is virtually untouched. Prices of some manufactured goods would be cheaper this year. But the impact of this on overall price index would be negligible.

The stock market is however disappointed because the Budget has not reduced either personal or corporate income tax. But the stock market is not always a good indicator of industrial behaviour. Last year when industry suffered from recession, the stock market went to dizzy height to eventually collapse after the exposure of scam.

The first two budgets of Prof. Manmohan Singh gave greater priotrity to stabilisation. This budget appears to give greater importance to reform of the tax structure. The increased plan outlay would also promote public and private investments, and in this respect it is a growth oriented budget. But the overall economic outlook continues to be depressing.

In the first two years of structural reform the growth rate of GDP, especially industrial GDP, has decelerated well below the long-run trend. Public and private investment rates have declined. Inflation rate has come down but inflationary expectations continue. Fiscal deficit has come down, but the trade balance continues to be adverse. The revival of the economy in 1992-93 is contributed more by the agricultural sector than by the industrial sector. There is need for cautious optimissim. □

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Pragmatic And Growth Oriented

Paranjoy Guha Thakurta

THE most significant aspect of the Union Budget for 1993-94 is the decision to make the rupee fully convertible on the trade account. Also important are the sharp reductions in customs and excise duties.

In a major gesture towards liberalisation of the agricultural sector, the Finance Minister, Dr. Manmohan Singh has said that the Government's policy is to remove "administrative restrictions on movements of agricultural products within the country" to provide farmers "the full benefit" of prevailing open marker prices.

Moreover, the Finance Minister has assured farmers of larger flows of credit through the National Bank for Agriculture and Rural Development, which would also set up a venture capital fund and a cooperative development fund. According to the Finance Minister special attention will be paid to revitalise the agricultural credit system in 1993-94.

Industry has been given some relief by providing one per cent cut in interest rates. The Finance Minister has also sought to answer criticism that he has been pro-rich and pro-business by proposing to step up the outlay on poverty alleviation programmes and by increasing allocations for health and education. There has also been a significant increase in Plan outlay, especially for the infrastructure sector. Investment in the power sector has been sought to be given a special boost.

The Budget has proposed sharp cuts in import tariffs leading to a revenue loss of Rs. 3,273 crore. The reduction in excise duties would also lead to a revenue loss of Rs. 2,249 crore, but the Finance Minister expects the loss to be offset to the extent of Rs. 1,000 crore on account of higher production.

In another significant proposal, nationalised banks have been given the green signal to raise capital from the market to enhance their equity bases to meet international capital adequacy norms.

Certain reliefs have been given to income tax payers. The standard deduction limit for salaried persons was raised from Rs. 12,000 to Rs. 15,000 and for working women with incomes up to Rs. 75,000 a year from Rs. 15,000 to Rs. 18,000. Concessions have also been given to senior citizens and handicapped persons. However, the 12 per cent surcharge on personal incomes above Rs. one lakh has not been removed because of severe resource constraints.

Full Convertibility

Full convertibility is expected to make exports relatively cheaper and do away with the implicit tax on exports under the system of partial convertibility introduced a year ago. While petroleum product prices are not expected to go up immediately for two reasons—international oil prices are currently sluggish and domestic prices were increased substantially in September—fertiliser prices could go up again not only on account of the higher rupee cost of imports but also because of the reduction in subsidies.

Seeking to allay fears of a sharp devaluation, Dr. Singh said that the experience of the past year gives ground for confidence that we can unify the exchange rate and still manage the balance of payments with a reasonable degree of stability in the exchange rate.

In an attempt to pull segments of industry out of recession, the Finance Minister has proposed a reduction in excise duties on a range of consumer durables like cars, colour trelevision sets, refrigerators and air conditioners.

Excise duties have also been reduced to help the domestic capital goods industry and assist industries hit by recession. Duties on coffee, tea and instant tea have been removed completely and duties on vanaspati and footwear made by khadi and village units reduced. Excise duties have also been reduced on evaporative coolers, electric fans and other domestic appliances, dry cell

batteries, inks, radios, noodles, biscuits, plastic moulded luggage and mattress.

In addition, excise duties have been brought down on a range of capital goods and instruments, the reduction being steepest in the case of power equipment. The excise duties on three wheelers, vehicles used for public transportation and body building on chassis of such vehicles have also been reduced. It seems likely that industries hit by demand recession would be more willing to pass on these benefits to consumers.

While not changing the income tax structure on corporations, the Finance Minister has sought to provide a stimulus to industry by proposing a five year tax holiday for new industrial undertakings located in the North Eastern States, Jammu and Kashmir, Himachal Pradesh, Sikkim, Goa and the Union Territories of Andaman and Nicobar Islands, Dadra and Nagar Haveli, Daman and Diu, Lakshdweep and Pondicherry. This will go a long way in the development of these areas.

A five-year tax holiday has been declared for new industrial undertakings set up anywhere in the country for power generation or distribution. The five-year tax holiday available to units in free trade zones has been extended to software and electronic hardware technology parks.

Tax Exemptions

The income tax deduction given to contributions to approved universities, institutions of technology and management etc. has been doubled to encourage industry to contribute to these bodies and make them less dependent on Government funds. Tax concessions have also been given to the incomes of research organisations.

Income tax exemption has been given to donations made to the National Foundation for communal harmony. The textile sector has received its share of tax concessions with the excise duties on polyester and nylon filament yarn being reduced. Import duties on specified bulk drugs have been reduced and indigenous manufacturers of medical equipment encouraged.

Import tariffs on projects, capital goods, metals etc. have been brought down. However, the Finance Minister has made it clear that every effort has been made to protect the legitimate interests of domestic capital goods manufacturers. Customs duties on chemicals and petrochemical products, intermediates and raw materials have been reduced and rationalised. Tariffs have also come down in the case of imported electronic components, capital goods used in export industries like textiles, leather, marine products and gems and jewellery for food processing and for the ship breaking industry. Duties have been reduced in the cases of agricultural equipment, outboard motors, certain pesticides, poultry stock and particular kinds of tractors.

The general duty rate on baggage has been reduced from 255 per cent to 150 per cent as a measure of simplification. The maximum duty rate on all such goods, barring alcoholic beverages, has come down from 100 per cent to 85 per cent.

In the financial sector, where the banks would require an infusion of Rs. 10,000 crore to achieve international capital adequacy norms, the Finance Minister has made a provision for Rs. 5,700 crore in 1993-94. This would be in the form of Government bonds and though there would be no immediate outgo from the exchequer, the interest and ultimate redemption of the bonds will be a real burden on the budget in the future.

The Government has also decided to amend the Securities Exchange Board of India (SEBI) Act to give it more power to carry forward the capital market reforms. A high powered committee is being set up to go into reforms of the insurance sector. □

Creditable Achievements In Many Areas

Arabinda Ghose

THE Railway Budget is a keenly awaited annual event not only for the millions of railway passengers and the lakhs of persons booking freight every day, but for almost every body. Most people become apprehensive about the steep increase in passenger fares and freight rates. This year also, as usual, there were hikes. However, the blow has been rather mild—only 10 per cent in fares and 10 to 12 per cent in freight.

Even this mild dose of taxation will give the Railways Rs. 2,195 crore of "excess of income over expenditure". This is a record figure by all standards because the maximum surplus or excess that the Railways have ever achieved is in this year (1992-93) itself when according to revised estimate, the excess will be of the order of Rs. 756.68 crore.

Remarkable

Before going into further details, it may be mentioned here that as a result of this large "excess" the operating ratio (relation between gross traffic receipts and total working expenses) for 1993-94 has been projected at 83.1 per cent. This is a remarkable feat by any standards because even during the Seventh Five Year Plan, when the performance of the Railways had been singularly notworthy, the operating ratio had never come down below 90 per cent. A fall out of the generation of this large surplus will be the increase in the ratio of the Net Revenue to the Capital-at-charge (the total amount received from the general revenues for building and procuring capital assets) and increase in investment from Capital Fund to an estimated 15.3 per cent—far higher than the 10 per cent recommended way back in the early eighties by the Paranjpe Committee on Rail Tariffs.

Innovative

Obviously, a great deal of innovation has been resorted to for projecting this sort of budget. One of them is the introduction of the "Sleeper Class" for rail travel by specifically classifying one class of passenger vehicles as such. This may in the long run, prove to be an advantage to the general public who take to second class three tier sleeper class travel for overnight journeys.

The 25 per cent increase in fares for this class over and above the normal fares—both by ordinary slow trains and the mail/express trains—will net in as much as Rs. 494 crore more from second class mail and express passengers in 1993-94. In any case, the passenger services on the whole will give the Railways Rs. 5,110 crore in 1993-94 out of Rs. 19,021 crore of gross traffic receipts the Railway Minister has estimated for the year.

The most outstanding feature of this year's budget is the ability of the Minister to stuck to the Plan size of Rs. 6,500 crore and not let the target of gauge conversion being watered down at all.

This level of investment in the Plan will enable the Railways to provide Rs. 815.3 crore for gauge conversion covering a total of 1600 kilometres in 1993-94 against Rs. 559.41 crore (revised estimate) in 1992-93 for 1200 kilometre.

Similarly, doubling of tracks have also been allocated a larger outlay in 1993-94, and for rolling stock, the allocation has gone up from the revised estimate of Rs. 1,455.98 crore in 1992-93 to Rs. 1,924.63 crore in 1993-94. Railway electrification too will be provided higher allocation—Rs. 280 crore in place of Rs. 235.45 crore during 1992-93 (Revised Estimate).

In the gauge conversion programme, the Railways have taken up a really ambitious scheme of covering the entire Lumding-Dibrugarh route along with all the linked branch lines, totalling 769 kms from metre gauge to broad gauge.

Another significant allocation under the Plan head is for workshop including production units which will mean increasing the capacity of the coach and locomotive factories. The allocation has gone up from Rs. 222.51 crore to Rs. 260.48 crore. The bulk of this increase of course will go to the Chittaranjan Locomotive Works where the capacity of building electric locomotives is being increased from 120 to 150 a year.

Growth Oriented

Although the budget can be described as growth oriented, the economic situation of the country as a

whole has affected the railways too. While during 1992-93, the Railways proposed to mobilise Rs. 1,500 crore from market borrowing in order to finance the Plan schemes, there was very poor response to the 10.5 per cent tax free bonds. The same fate befell the Konkan Railway Project too. It is for this reason it appears, that the Railways have decided to set up what they call a capital fund from this year allocating Rs. 370.12 crore out of the excess. For 1993-94, the allocation is a whopping Rs. 1,960 crore.

It is significant that this Rs. 1,960 crore is proposed to be spent on Plan schemes only and as much as Rs. 193.92 crore out of this fund will go for railway electrification for which the total allocation is Rs. 280 crore. A large chunk of Rs. 624.51 crore have been earmarked for the Railway Board which means that this amount will go mainly towards procurement of rolling stock.

This step is also indicative of the Railways' resolve to severe its financial links with the general revenues at a future date as pointed out by the Railway Minister in his speech. The Railways themselves will finance the annual plan of Rs. 6,500 crore to the extent of Rs. 4,640 crore and will take only Rs. 960 crore from the general revenues. The remaining Rs. 900 crore is proposed to be raised from issue of tax free bonds.

One must mention here that from the end of 1992-93, the Railways will have no outstanding amounts to be paid to the general revenues. In technical terms, this will be known as total freedom of the Railways from indebtedness to the general revenues. This is a very creditable achievement.

Initially it was feared that the Railways will not be able to pay to the general revenues the "dividend" due to them on account of the capital loans. But it has not been so. The Railway Minister has allocated Rs. 1,253 crore for dividends to general revenues during 1993-94, almost Rs. 100 crore more than last year.

Consolidation

The 1993-94 Railway Budget also shows that the step towards consolidation for the gains achieved during the Seventh Plan and subsequent years will be the principal aim of the Railways. Therefore, not many new line projects have been included in the budget. However there are three new lines. The first is the broad guage line between Narkhed and Amaravati (138 kms) in the backward Vidharbha region of Maharashtra. The second one is the 177-km long Peddapalli-Karimnagar-Nizamabad line in the backward Telengana region of Andhra Pradesh. The third is also a line in a backward region, this time in Orissa between Lanjigarh Road and Junagarh (54 kms).

In the field of gauge conversion, the inclusion of the Rewari-Bathinda (300 kms), Jodhpur-Jaisalmer (297 kms), Neemuch-Ratlam (135 kms), Phulera-Marwar-Ahmedabad (572 kms) and Luni-Marwar (72 kms) are very encouraging because most of Western India will as a result, be provided with broad guage lines, replacing the century old largely metre guage system. The day is not far when one can travel without changing trains from Dibrugarh to Jaisalmer integrating the country more strongly by bonds of steel that no forces can snap. □

Konkan Railway Corporation : A Model

The first phase of the Konkan railway linking Mangalore and Udipi stretching 68 Kms has been opened The Prime Minister who inaugurated this, also flagged off the broad gauge train on this line. The Prime Minister appreciated the speedy completion of work and hoped that the entire project would be completed on schedule. He described the Konkan Railway Corporation ltd. as a model institution. The target date for completion is October this year.

Out of the 760 Kms. of the Konkan Railway line, 382 kms. lie in Maharashtra, 105 Kms. in Goa and 273 kms. in Karnataka. The progress in Maharashtra is 40 per cent, Karnataka 55 per cent and Goa 25 per cent. 115 kms of the total project have already been completed.

The cost of the project is Rs. 1,400 crore at 1991-92 price. The expenditure incurred so far is Rs. 710 crore.

With the completion of the Konkan Railway Project, the distance between Bombay-Mangalore will be reduced by 1127 kilometres from 2014 kms. to 914 kms., with a saving of 26 hours in travel time ; between Bombay-Cochin by 513 from 1849 kms. to 1336 kms., saving 12 hours in journey time and between Bombay-Goa by 190 kms., from 770 kms to 580 kms., saving 10 hours.

The Railway line will serve several industries such as 2400 MW thermal plant at Mangalore, the Kaiga Nuclear plant near Karwar, a 1000 MW thermal station at Dabhol port on the mouth of the Chiplun creek, the Petroleum Refinery at Mangalore and the gas cracking plant at Patalganga between Roha and Dasgaon. Besides, the availability of minerals like iron ore, bauxite, chromite, manganese and silica sand in the hinterland of Knonkan Railway line will spur a large number of activities to generate multiple opportunities. It will also boost tourism industry along the West Coast with its picturesque tourists spots. Several pilgrim centres along this line will be served.

The Konkan Railway Corporation was set up on July 19, 1990 under the Companies Act to construct Konkan Railway project, on Build, Operate and Transfer (BOT) basis.

Ensuring Quality Of Goods

Dr. Ashok Kumar Singh

ENDOWED with a bountiful nature, India produces in abundance a variety of crops ranging from the temperate to the tropical varieties. Thanks to its rich animal wealth, India also produces a range of live stock products. Thus, India's agricultural and live stock production comprises a variety of cereals, pulses, oilseeds, beverages, fruits, vegetables, plant fibres, spices, condiments, animal fibres and other industrial raw materials. There is a considerable volume of inter-state and intra-state trade in these items. Also, agricultural and allied products, both in the raw and processed form, figure prominently in India's export trade.

Unlike manufactured goods, agricultural products exhibit considerable variation in their quality characteristics on account of the inherent varietal differences as also differences in the soil and climatic conditions under which they are produced. Therefore, grading of agricultural products on the basis of recognised standards assisted the growers, local traders and exporters in their commercial dealing. Besides, it renders the measurement of quality easy. It also enables easy market communications and restrains the flow of unsatisfactory or sub-standard produce into the active market or trade operations.

Grading

One of the major functions of the Directorate of Marketing and Inspection (DMI) is grading and standardisation. The insignia of "AGMARK" is widely known within and outside the country as a hallmark of quality and purity for agricultural products. Grading of agricultural commodities has three main purposes. Firstly, it protects the producer from exploitation. By knowing the quality and grade of his produce, he is in a better bargaining position against the trader; secondly, it serves as a means of describing the quality of commodities to be purchased or sold by the buyers and sellers all over the country and abroad. This established a common trade language and avoids the need for physical checking and handling at many points. Thirdly, it protects the consumer by ensuring the quality of products he purchases. Trading on the basis of accepted quality standards makes pricing more precise and equitable thereby making the price-reporting mechanism more meaningful.

The Agricultural produce (Grading and Marking) 1937 as amended in 1988 gives statutory powers to the Central Government to enact rules for prescribing grade standards for agricultural and livestock products, defining quality, prescribing methods of marking, packing, sealing and laying down conditions for issue of "certificate of authorisation" for carrying out the grading. The specifications are popularly known as 'AGMARK' standards. The word "AGMARK' which signifies agricultural marketing and stands for a statutory seal ensuring quality and purity, is now familiar to all quality conscious consumers in India and abroad.

Under the provisions of the Act, the DMI has formulated grade standards for various agricultural commodities trade in the country. So far grade standards for 142 agricultural and allied commodities have been formulated and notified. During 1991-92, the work of formulation of grade standards for Assam and Shimoga ginger, Alleppy turmeric-split and bulbs, blended oil, sunflower oil, soyabean oil, refined mustard oil, Jammu basmati rice, soyabean seeds and cocoa beans, mixed masala powder and cocoa powder are likely to be completed. Besides, the grade standard for 18 important commodities would be reviewed and revised. Besides, general grading and marking rules, separate rules have been framed for 101 commodities. Grading marking under the Act is voluntary.

Internal Trading

Grading of agricultural commodities for internal trade is voluntary and is carried out at the request of sellers under the Agricultural Produce (Grading and Marking) Act, 1937. The

commodities graded under "AGMARK" for internal trade are classified into two groups, viz. centralised commodities and decentralised commodities.

(a) Centralised Commodities

Grading of centralised commodities which include ghee, butter, vegetable oils, oilcakes, powdered spices, honey etc. requires more elaborate testing arrangements and hence is directly handled by the D.M.I.

(b) Decentralised Commodities

Decentralised commodities include wheat atta, rice, pulses etc. the grading of which is relatively simple. This is being looked into by the marketing departments of the concerned State Government under the overall supervision and guidance of the department of marketing and inspection.

The value of commodities graded for internal consumption during 1990-91 was Rs. 1,338 crore (Table I).

Grading under "AGMARK" at trader's level is mainly a consumer-oriented measure and hence has a limited utility to the farmers. Therefore, for securing adequate return to the producer seller, a programme of grading at the level of farmers was introduced in 1963-64 through State Marketing Departments. The idea is to subject the produce before it is offered for sale, to simple tests of quality which influence its market value. This should help the producer to get price commensurate with the quality of his produce.

In order to secure an adequate return to the producer or seller for his produce, a programme of establishment of grading units in regulated markets and marketing cooperatives is being implemented by State/UTs. About 50 commodities are graded before sale in 1051 grading units set up in different States and UTs.

For Export

Compulsory quality control and preshipment inspection of agricultural commodities for export was introduced in 1942 when the export of sann hemp fibre was prohibited unless it was graded and marked in accordance with the specifications prescribed under the Agricultural Produce (Grading and Marking) Act, 1937. As this Act is voluntary in nature, compulsory quality control was enforced under the Indian Sea Customs Act, 1978.

The Planning Commission recommended in the First Plan the introduction of compulsory quality control under "AGMARK" in respect of important commodities. The Export (Quality Control and Inspection) Act was enacted in 1963 and the Export Inspection Council was set up to enforce compulsory quality control on commodities meant for export. The Directorate of Marketing and Inspection is presently acting as an export inspection agency on behalf of Export Inspection Council.

More and more commodities gradually came to be included under the purview of the quality control under "Agmark" before export. At present, 41 agricultural commodities are being graded compulsorily before export. During 1990-91 commodities valued at Rs. 950 crore were graded for export.

The insignia of "AGMARK" is the symbol of quality and an instrument of protection to the importers. Due to "AGMARK" grades standards undergo revision as dictated by current demand abroad and are adjusted to the foreign consumer's requirements. "AGMARK" helps in bringing together the exporters in India and importers abroad. Thus, the insignia of "AGMARK" is a guarantee of good quality and purity for agriculrural products. □

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Mauritian School Renamed After Rajiv Gandhi

The Riche Mare Primary Government School in Mauritius has been renamed as Rajiv Gandhi Government School. The Prime Minister of the island nation in the Arabian Sea, Sir Anerood Jugnauth, unveiled the marble plaque during the renaming ceremony. This school is situated in Flacque area of Mauritius which is predominantly populated by Indo-Mauritians.

The distinguished guests present on the occasion paid rich tribute to Rajiv Gandhi. They recalled his visit to Mauritius, his close association with the people of the nation and his contribution to world peace. They spoke warmly of the close Indian relations existing between India and Mauritius. The Indian High Commissioner Shri Shyam Saran presented a set of books and a portrait of Rajiv Gandhi to the school.

New Possibilities From Sugar Industry

J.K. Gehlawat

INDIA is an energy deficient country. The linkage between the energy availability and economic development is a well-known phenomenon. The GDP in developing countries grew by 3.5 per cent to 5.5 per cent between 1970 to 1980 while energy consumption increased by over 7 per cent a year. Currently, the energy consumption (in the form of electricity) is increasing at the rate of about 11 per cent per year in India. Further, the per capita energy comsumption in India is 25% of the global average. Therefore, increased exploitation of energy resources is the only answer to economic survival, especially in a competitive free economy to which India is getting exposed to now.

The energy needs of various sectors are increasing rapidly. The conventional sources of energy are hydel, thermal and to a small extent nuclear energy. The conventional fuels such as oil, gas and coal cannot meet the increasing demand for ever. The enormous amount of depletion of foreign exchange for procuring crude oil etc. virtually unsettles the delicate economic balance of our country. According to one estimate about 1,200 billion rupees have to be invested during the VIII Plan to sustain the present economic growth. However, due to a severe resource crunch, the Planning Commission could not allocate more than 600 billion rupees which would mean a shortfall of about 13,000 MW of power. Further, it may be noted that, in addition to requirements of huge funds, the implementation of various projects to generate more electricity through the conventional means may have serious problems due to their adverse impact on environment. Hence, of late there has been a greater emphasis on exploring the alternate sources of non-conventional energy, such as solar energy, wind energy, biogas etc. Not many may be aware that sugar industry could become the single largest source of non-conventional energy in India. It could contribute about 10 per cent (5,000 MW) of the total power production at the lowest cost. In this context, the proposal to generate surplus power through co-generation from sugar industry has merits over other options. It is indeed a unique scheme since sugar mills are widely spread all over the country. Power will be generated at locations where it is needed the most to boost agricultural and rural development. It does not require inputs of any external fuel. So it is going to be the cheapest source for power generation, due to low investment in plant, machinery and infrastructure and virtually at no fuel cost.

Co-Generation

Co-generation means simultaneous generation of power and steam. Most process industries consume energy in two forms—viz steam and electricity. The concept of co-generation can rightly be introduced at the design stage of all such units which require large inputs of steam and power. The steam must be generated in high pressure boilers and then expanded in a steam turbine to generate electric power. The low pressure steam may be used for process heating.

In sugar industry, bagasse, its by-product, is used as fuel to generate steam, as well as power. No external fuel is required. Hence, sugar mills are ideally suited to adopt co-generation. Bagasse is a clean fuel. Consequently, co-generation from sugar mills would produce less emissions of carbon dioxide, other gases and particulate matter, making it environmental friendly. Further, sugar mills are located in rural areas and are widely distributed throughout the country. The surplus power thus produced by sugar mills in rural environment should prove a boon for the country-side which has remained neglected so far.

Co-generation is not a new concept since sugar mills in India have been generating electricity for many years for their captive requirements. Small countries like Hawaii and Mauritius meet over 50 per cent of their needs from sugar industries through the technique of co-generation. The overall efficiency of some co-generation systems, according to one estimate, can be in excess of 80 per cent as compared to the typical 35 per cent of a power utility based on conventional means. So far, the sugar mills have not considered generating surplus power (at a fraction of the investment cost of new power plants) and selling it to the grid. According to one estimate the potential of co-generation in the country by sugar and other industries, through the use of biomass, bio-gas, bagasse and diesel fired systems, is about 10,000 MW. About 50 per cent, that is, 5,000 MW could be provided by sugar industry alone.

Unlike other sources of non-conventional energy which are still at developmental stages, the co-generation method is a proven and mature technology. Capital equipment, like high pressure boilers, may have to be imported for co-generation. There are positive indications that such boilers may be manufactured in India soon. The incentives like reduction in customs duty, excise duty, 100 per cent depreciation, sales tax, finance at concessional rates and single window clearance will help to promote this new development.

It will be in the larger social interest to promote setting up of co-generation facilities in all new sugar mills and at those mills which are to undergo substantial expansion and modernisation. Adequate incentives including low cost funds should be provided to the industry for this purpose. Sugar Development Fund could be one such source by levying a cess on consumers of electricity from such co-generation units. The Power Finance Corporation could assist the mills by investing in co-generation plants. Recently, while commending co-generation as an efficient and economic source of additional energy, the World Bank has indicated its willingness to provide credit for any project that may be recommended by the State or Central Government. Hence, funds are unlikely to be a constraint in promoting this wonderful concept for power generation in India.

Energy Crop

Photosynthesis is one of the most efficient natural processes for the conversion of abundant solar energy into biomass. In this respect, sugarcane plant holds a unique position. This is the only crop which is endowed with the highest solar energy conversion efficiency for biomass and can be rightly named a vast store-house of fibre, food, fuel, fertilizer and chemicals. One hectare of land can annually produce about 10 tonnes of food products including sugar, a litre of alcohol and 2 tonnes of fertilizers, provided this raw material is processed in a more efficient manner. It is estimated that a medium sized sugar mill of 2,500 TPD cane crushing capacity could generate about 8-10 MW surplus power which may be supplied to other consumers in the neighbourhood. Presently, there are 400 sugar mills in operation in India. Another 70 are under installation. Thus, in addition to meeting its own requirements of about 2,000 MW, the sugar industry can add over 5,000 MW surplus power to the national grid by using modern boilers based on bagasse which operate at pressure of 50 bars and above.

The by-products of sugarcane bagasse and molasses are very valuable. Good quality paper can be produced from bagasse. Molasses is used for the production of alcohol. Alcohol has been used as a substitute for petrol in automobiles. India is a world leader in sugar production and tops the world in the production of chemicals from alcohol. World's only plant for the production of synthetic rubber from alcohol is located in India at Bareilly in U.P. Thus, sugarcane is a wonderful crop which harvests the solar energy to the maximum extent and provides the mankind with a variety of food and chemical products including electricity.

Clear policies should be laid down for supplying surplus power from sugar mills to the consumers in the command areas of respective sugar mills through the existing state/central transmission systems. This will ensure uninterrupted power supply to the consumers in the command area of a sugar mill. It will promote speedy development of agricultural and rural industries. Such a development would change the rural scenario for the better. Hence, top priority may be given to all proposals for modernisation and expansion programmes of sugar mills with co-generation facilities. It is also suggested that setting up of integrated sugar complexes, including a distillery and a paper mill may be promoted. □

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Forensic Analysis Of Wild Flora And Fauna

The Central Forensic Science Laboratory (CFSL) has started work on forensic analysis of wild flora and fauna. The nucleus on forensic analysis build up in the Laboratory will help Wildlife and Custom authorities to book illicit traffickers. Illicit trafficking of endangered species of wildlife has been on the rise in recent times. Poaching of wild animals birds, reptiles and others of the tribe, for their valuable body parts has been going on for sometime. Imitation of these by synthetic materials confuses the authorities to quest on the smugglers.

New techniques are being developed to help the investigating officers in respect of explosives and narcotics. Already, Wound Ballistics studies have commenced in the CFSL Calcutta. The Laboratory is organising Workshops on the subject and plans to start a national facility in the field in India

Bureau of Police Research and Development under the Ministry of Home Affairs is coordinating development of various facilities to help the police forces in the country to meet various challenges in the field.

How Sweet Are The Prospects ?

B.N. Biswal

THE modern sugar industry made its beginning in the country during the first decade of the century when two sugar mills were established —one each in Bihar and Uttar Pradesh. The industry received a great boost after the fiscal protection in 1931. It is India's second largest organized industry next to cotton textiles. India is now the leading producer of cane sugar in the world. During 1975-76 the sugar industry emerged as India's largest single foreign exchange earner contributing nearly 13 per cent of the total export earnings. But the glory gradually declined after 1984. Now we are more or less self sufficient in sugar production. In 1991 we exported 2,00,000 tonnes of sugar and molasses which secured us foreign exchange worth Rs. 37 crore. It is a mere 0.8 per cent of the total export of agricultural products.

Industrial sickness, out-dated machinery, low yield of sugar cane, unfair pricing, higher excise and other duties are the major problems faced by the industry.

Sugar cane is the most important raw material for the industry and it constitutes nearly 60 per cent of the total cost of production. Therefore, the industry is naturally conditioned by the sugar cane production in the country.

Unfortunately, sugar cane production in the country is in a state of stagnation for the last thirteen years. The area under sugar cane cultivation increased from 3.15 million hectares in 1977-78 to 3.7 million hectares in 1990-91. Production increased from 176 million tonnes in 1977-78 to 240 million tonnes in 1990-91, where the growth rate is less than one per cent per year. Cane production is not likely to keep pace with the requirements by the sugar mills and the crisis on the sugar front may deepen in future. The main factors responsible for this are poor varieties of cane, obsolete methods of cultivation, small and scattered nature of holdings, lack of proper fertilizers and pesticides etc.

The percentage recovery of sucrose is the second factor which determines the production of sugar. Cane is a highly weight losing commodity and so it is to be processed within a short time after harvest.

Another burden to the industry is the increasing number of sick units. The Guddu Rao Committee observed that most of the Indian sugar mills are running with old and out-dated machinery. This leads to fall in production and sickness. The Sen Enquiry Commission also supported this view. Ten years back the Indian Sugar Mills Association estimated that the industry needs Rs. 115 crore to modernize the existing units.

Remedies

Development of early maturing cane varieties and mechanization of cultivation and harvesting are necessary to boost sugar cane production. Popularization of crop production technologies, particularly on water, nutrient and ratoon management should be done both in the factory and non-factory zones. In 1991 we spent Rs. 443.56 lakhs towards research projects in the sugar industry.

The sick units can be improved in many ways. If the sickness is due to outdated machinery, it can be modernize with availability of extra funds, technical and managerial guidance. Mergers, amalgamations and bringing them under co-operative sector are also suggested.

State Sugar Directives should be established in the States to look after the problems of the units. They help a lot in the field of managerial expertise, institutional finance etc.

The Sugar Development Fund which was set up ten years ago recommended that inventory carrying costs, including storage and interest charges, are to be borne by the Government. According to its norms, Rs. 14 will be collected as cess on per quintal sugar production. Out of this Rs. 9 will be used to create the buffer stock and the balance Rs. 5 will be used for cane development. If this is done, it will help a lot to the units.

We are now more or less self sufficient in the production of sugar. Under the present circumstances if we take necessary precautionary steps the standards of production and export of the sugar industry can be improved and the sugar industry will regain its past glory. □

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Mineral Industry In India

INDIA is endowed with significant mineral resources. These include 101 billion tonnes of limestone, 17 billion tonnes of iron ore, 3 billion tonnes of bauxite, etc. Resources of mica, chromite ilmenite, barytes, soapstone and granular sillimanite are also abundant. Presently, around 60 minerals/ores are being mined in India consisting of fuel, metallic and non-metallic (industrial) minerals. India continues to be the world's No.1 producer of sheet mica. With the recent spurt in world demand for chromite, the country stepped up its production to become the 3rd chromite producer in the world. India ranks 4th in production of barytes, Kyanite and sillimanite. 5th in talc/ steatite and bauxite and 6th in coal, lignite and iron ore. The country is self-sufficient in about 40 minerals, constituting the primary raw materials for the core sector such as thermal power generation, iron & steel, alloy steels, ferro-alloys, aluminium, cement, refractories and chemicals.

The value of mineral production in the country was around Rs. 17,500 crores in 1991-92 which is about 4 per cent of the gross national production (GNP). Exports of minerals accounted for Rs. 7,860 crores or 18 per cent of the total exports of Rs. 43,800 crores during 1991-92. The principal items of exports are iton ore, alumina and aluminium, granite, mica, chromite, magganese ore barytes, etc. Presently minerals are mostly exported in raw form without much value addition. Increasing attention will have to be paid to maximise export of value added items. Export of jems and jewellery is dependent on imported roughs which would necessitate more intensive prospecting for diamonds in the country if the impor intensify in this sector is to be brought down.

India's resources of several minerals/ores are, however, inadequate; in some cases their gardes are low. The country has therefore, to depend on imports of minerals and metals such as petroleum, sulphur, potash, asbestos, rock phosphate, copper, lead, tungsten, tin nickel and molybdenum. The value of imports of minerals during 1991-92 was around Rs.15,000 crore which is about double the value of our mineral exports. The trade deficit on this account is a matter of continuing concern to the Government. In this context it is imperative that available mineral resources are out to optimal use through scientific mining, appropriate benefication and economic utilisation. Our twin objective, therefore, is to step up indigenous production as well to improve recoveric of minerals and metals which are in short supply and increase exports of minerals which are in abundance and where domestic surpluses are available.

In the last few years, there have been significant mineral discoveries in the country such as Rampura-Aguche lead-zinc deposit and LD grade limestone deposit in Rajasthan, the Malanjkhand copper reserves in Madhya Pradesh, the East-coast Bauxite belt in Orissa and Andhra Pradesh, Mangampet barytes deposit in Andhra Pradesh and the molybdenum deposit in Tamil Nadu, to name a few. However, exploration for locating new deposites needs to be given much greater thrust.

The priority areas in the field of exploration, exploitation and export of minerals, during Eighth Plan period, have been carefully identified keeping in mind factors like scarcity of the mineral/metal in the country like copper, lead, zinc; potential for export as in case of iron ore, barytes, bauxite and dolomite; strategic importance like in tungsten, tin, molybdenum, cobalt and nickel; fertilizer minerals such as rock phosphate/phosphorite and potash, precious minerals and metals of the platinum group, gold, diamond and gem stones; and high-tech minerals like crystalline silica, selenium, lithium, beryllium and zircon.

Significant Contribution

Mineral-based industries contribute significantly to the overall industrial growth of the country. Prominent among these are iron and steel, cement, ferro-alloys, non-ferrous metals, petro-chemicals, fertilizers, refractories and glass and chemical industries. During 1991-92, about 13 million tonnes of ingot steel, 45 million tonnes of cement and more than 5 lakh tonnes of aluminium metal were produced While the production of copper, lead and several other metals countinues to be inadequate, the indigenous availability of aluminium and zinc has considerably increased with setting up of the aluminium plant of National Aluminium Company at Angul in Orissa and lead zinc plant of Hindustan zinc Ltd at Chanderiya in Rajasthan. However, the overall

metal scenario on the country underscores the need for exploring other options, like setting up of metal smelters based on imported concentrates, creation of secondary capacity based on metal scraps, and the like.

As a sequal to the new Industrial Policy announced in July, 1991, Government has initiated a number of structural reforms, foremost amongst them is the decision to welcome inflow of foreign investment and technology, liberalisation of the economy and de-regulation of industry with a view to integrate with the global economy. Joint ventures for mining and smelting in other countries for the purpose of importing minerals and concentrates of metals that we are deficit in, appear attractive propositions. Areas for possible joint ventures could be in rock phosphate, LD grade limestone, coking coal, to name a few.

Private domestic as well as foreign investment can play a vital role in accelerating development of mineral production and processing and metallurgical industry in the country giving, at the same time, the much desired push to our mineral exports in value added form. For this purpose. Joint ventures within the country would be welcome in selected minerals. Equity participation or funding in some other mutually acceptable frm in new mining ventures such as Bababudan and Chiria iron ore, expansion of existing mines such as Panchpatmali, working exhausting mines such as Kolar or development of new areas such as gold placers in Kerala, could be considered for cooperation. Other areas for such participation and collaboration could be underground mining of chromite under weak wall-rock conditions, development of heap leaching in respect of copper and gold, extraction of metallic values from multimetal ores, as also imporved byproduct recoveries.

There is considereable scope for participation in the field of exploration and exploitation of minerals and manufacture of value added mineral based products. The Government is reviewing the existing mineral regulatory framework to create more conducive conditions for such participation. For this purpose and in the wake of the Statement on Industrial Policy, 1991, the Government is also considering amendment to the Mines and Minerals (Regulation & Development) Act, 1957 taking into account the suggestions received from various State Governments/ Union Territories, Federation of Mining Associations and the mining Industry. □

Top Priority For Exports In Budget

- All exporters and other foreign exchange earners to be allowed to convert 100% of their earnings at market rate instead of only 60% as at present.
- Commerce Ministry to review and remove unnecessary restrictions on exports.
- Excise duty slashed on capital goods.
- Lower excise rate for power sector.
- To revive automobile, television, refrigeration and air-conditioning industries, excise duty in these sectors reduced.
- Excise duty on bulk plastic resins such as low and high density polyethylene, polyvinyl chloride, polystyrene reduced.
- Duty on plywood reduced.
- Excise levy on cosmetics and toilet preparations lowered.
- A package of excise duty concessions given to the textile sector.
- To encourage the film industry which is facing competition from the electronic media, duty reduced on unexposed cinematographic films.
- For development of non-conventional energy sources, import duty reduced on certain items needed for tapping solar and wind energy.

REVIEW ARTICLE

The Deprived Women

WIDOWS IN INDIA

By T.N. Kitchlu, Ashish Publishing House, New Delhi, (1993) ; Pages 341; Rs 500.

THE status of widows in the Hindu society is indeed an enigma. The oxford dictionary defines 'Sati' as "Hindu widow who immolates herself on her husband's funeral pyre; the custom requiring such immolation." Of Sanskrit origin, 'Sati' means 'virtuous wife'. One wonders whether, in earlier days the status of the women losing her husband was so inauspicious and unacceptable that the Hindu society preferred to sactifice her to her husband's pyre. Was it not an indication that given the facts of life then it was impossible for a widow to lead a normal life. In any case. it is still a pointer of the hazards that a widow may have to face in conducting herself creditably in the endeavours to bring up her children and herself face the challenges of time. The times have changed, the attitudes have softened; 'Sati' is a legal offence and widow marriage is acceptable.

The publication in a simple and matter of fact manner brings out in detail the problems which that section of widowed mothers face and seek to solve both as the head of the family and as the sole parent. The pathetic condition of widows in our society belonging to all the three major religious groups, i.e., Hinduism, Islam and Christianity has been vividly rendered by the author. The women who have lost their husbands and not married again could broadly be classified into three categories (*i*) those who have lost their men in defence of the country, i.e. war widows (*ii*) those unfortunate women whose husbands were fatal victims of communal militancy or large scale violence i.e. widows by calamity and (*iii*) widows who have lost their husbands by natural causes i.e. usual widows. The present publication largely deals with the problems of the third category of widows based on the survey conducted in Delhi, both urban and rural areas The book has seven chapters, dealing with specific aspects related to and based on the aforesaid survey (i) Status and Position of Widows-Retrospect and Prospect, (*ii*) Widows and their Families, (*iii*) Widowhood and its Consequences ; (*iv*) Economic Condition of Widows, (*v*) Problems Faced after Widowhood, (*vi*) Social Security and Rehabilitation and (*vii*) Summary, Conclusions and Recommendations.

The field study has thrown up copious data/information evident in 87 Tables and 14 Appendices apart from a fairly exhaustive bibiliography and index. In addition, the ten case studies given in a very lucid truthful manner are the abridged biography of ten unfortunate women. Contrary to general belief, the book reveals that "the widow still finds herself today lifted from the pyre but left in the cremation ground." It is stated that "in spite of social changes taking place in the country an overwhelming majority of widows are against re-marriage". Further, "the widow who said, she found it hard to make friends because women were too wary of a widow and the men generally avoided her" was stating the obvious.

The suggestions and recommendations are relevant and deserve attention of all concerned authorities. Though one may not entirely agree with all the recommendations, such as 2% reservation in Government jobs for widows (we have too many reservations and the Government job is not a panacea for all economic ills or a poverty alleviation programme). Any project to tackle the problems of widow should essentially contain inter alia; measures to generate awareness amongst concerned agencies on the need and rationale to launch efforts to bring widows in the mainstream of society and, (*b*) raising socio-economic status and dependents through programmes especially designed to build their innate strength for example, education, training and skill. There are not many studies on the specific subject of widows. The present work fulfils partially this vacuum. The book deserves attention of administrators, social workers, social reformers and researchers.

□

Dr P.S.K Menon

BOOKS

(1) SELF-RELIANCE—THE INDIAN PERSPECTIVE;

FOSET Publication, 6/1 Suddar Street, Calcutta-700017 ;

June, 1991 ; pp 86 ; Price Rs. 15.

(2) ON CERTAIN TECHNO-ECONOMIC ISSUES-A (Review);

FOSET publication, December 1990 ; pp 38 ; price Rs. 3.

The effort to establish a link between Science and Technology and the development of indigenous production system was a part of Indian National Movement and it was precisely those efforts which the British Government systematically sabotaged. As a result, the scientific institutions established during the period, got aloof from any productive activities. Hence these gradually became isolated from the society and the researchers. On the other hand, the Government administrative personnel who were trained at Government level, were compelled to restrict their acquired knowledge in the Government files. Indeed, the first impetus of Government in agriculture, to be more precise, the setting up of Agricultural Committee in 1869, was in response to the demand raised by the Cotton Supply Association of Manchester. The Committee was entrusted with the duty to enhance the scope for agricultural research. The inferences of these research were spread over in India. In this way, the Government provided an extended scope to promote scientific and technological knowledge as the other inferences of the European Industrial Revolution were found not only advantageous but indispensable for the advancement of a nation. But the link of Science and Technology with agriculture did take place pronouncedly because there was no proper way of exploitation of human resources. As a result, British Government never tried to make her colony, India self-reliant in Science and Technology.

Noticing the Indian situation concerning S&T, some eminent scientists, engineers, technologists have been expressing some alternative ideas for making the country self-reliant in this sphere. The two publications of FOSET (Forum of Scientists, Engineers and Technologists), a Calcutta based non-governmental organisation, focused on self-reliance. The organisation has played a significant role by bringing out these two useful anthologies at this juncture.

A. Ray

INDIAN ECONOMY By Karnati Lingaiah and T. Satyanarayana; Sterling Publishers Ltd; (1990) ; pages 219 ; Price Rs. 150.

The book has attempted to meet the felt need of students at the undergradate level studying in the Osmania and Kakatiya University areas and the authors have kept before themselves the syllabi of these two Universities in preparing the various chapters of the book. There are 13 Chapters in the book including the one specially devoted to a brief outline of the Economy of Andhra Pradesh. The other Chapters deal with economic development in general, with the various aspects of the Indian Economy such as National Income, population growth, occupational structure, poverty, planning, agricultural and industrial development, foreign trade and balance of payments and regional development. There is a good treatment of the definitions of economic development, characteristics of underdevelopment, about the factors which need to be tackled for initiating and speeding the process of development, role of the State etc. Some of the areas of relevance to our country such as the population problem, incidence of proverty and poverty alleviation, concentration of economic power, role of small scale industries, industrial sickness, role of financial institutions etc. and landmarks in the course of our development like the Green revolution, changes in the Industrial policy have been dealt with.

The various Chapters pertaining to the Indian economy are informative and should be helpful to students. The position of the Indian economy prior to Independence has also been dealt with, which gives an idea about how our economy was placed in those times and helps to know how it has changed since Independence. The Chapter on Andhra Pradesh gives a useful idea of the State's economic characteristics in the agricultural and industrial sectors. However, there is no treatment in the book about the country's public financial system, its important infrastuctural sectors like engry, transport. The book being dated 1990, naturally, has not dealt with the recent changes in the Indian ecomic policies such as the emphasis on economic reforms, liberalisation and enlarged private sector role ect, which may find place should there be a revised edition of the book. A good bibliography is available at different places in the book which should be useful to intersted students to probe the various subject areas in depth.

T.V. Gopalaswami

PLANNING EMPLOYMENT FOR EDUCATED YOUTH BY B.B. Patel ; Oxford & IBH Publishing Co. (P) Ltd. pp. 92. Price Rs. 125.

Though the percentage of educated manpower of the total labour force in India is nominal, yet being the most volatile section of the society, the high incidence of unemployment among this section poses a serious challenge to the policy makers and the society as a whole.

The problem has been engaging the attention of the policy planners and the educationists since the beginning of the planning era and many a study paper on this burning topic have been published. Unfortunately the end of the tunnel is still no where in sight.

The book under review is a sample study conducted by the author covering the post-graduate registrants of the University Employment Information Bureaux located at Ahmedabad, Vadodara and Surat. The study has established that the role of employment exchanges in providing employment or even positive information about job opportunities is very limited. Most of the job seekers registered with the employment exchanges ultimately secure jobs on their own at a low wage mostly in the unorganised sector.

To tackle this major problem the author has suggested promotion of self-employment particularly for those with engineering or other technical qualification, changes in the working schedule of the employement exchanges like decentralisation of registration of job seekers, deregistering the names of the candidates after 3 years, etc. etc.

Though the author has treaded on an already beaten path yet this competent and neat study with an impressive bibliography is a welcome reminder to this topic which poses a grave threate to the society.

P. Ghosh Dastidar

AGEING AND WELFARE OF THE ELDERLY IN INDIA EDITED BY T. KRISHNAN NAIR & K.V. RAMANA; Madras Institute on Ageing ; pages 127.

Demographers predict that population ageing will grow faster and by the year 2100, two and a half billion people of the world will be 60 + i.e., a fourth of the world's population will be elderly. Even in India there would be 257 million in this age-group, a massive increase from the 1981 level of 45 millions. Thus, there is a growing demand to create awareness about this group, examine and assess their needs and to plan for their welfare.

The Centre for the Welfare of the Aged (CEWA) organised a national workshop on 'Ageing and Care of the Elderly in India" in December, 1985. The participants of the workshop included social and behavioural scientists, scoial workers, representatives of organisations working in the field of welfare of the elderly, specialists in geriatric medicine and social welfare administrators. The proceedings of the workshop are presented in the volume, in the form of 8 papers, introductory remarks and a Plan of Action.

Rao, in his paper on demographic aspects has pointed out that decline in fertility has been the decisive factor in the ageing of the population in India as in the other industrialised countries. Halbar studies the joint family system of the Lamani tribes and their custom which dictates that the youngest son sould care for the parents. Nair refers to results of two surveys conducted in Tamil Nadu on the working status of the elderly and criticises the mandatory retirement age of 60 years in organised sector. Patil in his paper on retirement argues on the same lines that all employees do not age at the same rate and therefore a realistic and flexible retirement policy should be formulated. Soodan wants the Government to accept major reponsibility in the care of the elderly. Varadharajan citing different studies, concludes that the joint family system is being replaced by nuclear families and Vijayalakshmi and Ramana suggests a policy for the care of the aged by strengthening the family units. Kurup, howerver, refers to legal proceedings and Criminal Procedure Code, under which parents have to be maintained.

The Plan of Action for the Welfare of the elderly, suggests policies for overall welfare of this group, socially, economically, psychologically and physically. Considering the problems faced today and the burden that is inevitable in the future years, it is appropriate that implementation starts now at all levels—Government, society and voluntary organisational levels.

Studies and discussions relating to the elderly, though forms an important sector in policy and plan formulation exercises of developed countries have not gained much ground in India. Some sporadic studies and localised sample survery results give us a starting point. The 42nd Round of the National Sample Survey Organisation (1986-87) conducted a survey of the aged population and published results in Report No. 367, 'Socio-Econimic Profile of the Aged Persons'.

Workshops of such nature as arranged by the CEWA help to review the existing programmes, assess the situation and prepare plans for future course of actions. A documented version of the proceeding and the views expressed by the participants gives ample scope for future enrichment and thought. The editing is also appropriate as the problems and the remedies have been precisely capsuled. □

S. Dhar

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Self-Sufficiency In Oilseeds Production

Sunil Gafade

WITH the oilseeds production estimated to be a record one this year, India has come a long way in attaining the goal of self-sufficiency in the edible oil sector. The achievement is significant in view of the fact that the country has been facing for the last twenty years problems of shortage and rise in the prices of edible oils and has to resort to imports by spending precious foreign exchange. The imports had touched a peak of eighteen lakh tonnes in 1987-88, the year of the severe drought. Then, the country had to spend about eleven hundred crore rupees for the imports.

The breakthrough in production has become possible due to the greater thrust given for oilseeds production since the launching of the technology mission on oilseeds in 1986. The mission was set up to counter the situation caused by the mounting import bills of edible oil in the mid-eighites. According to some experts, the rise in the demand for edible oil was not only due to growing population, but also due to a growing urban middle class and changed lifestyles and eating habits.

Oilseeds production this year is likely to cross the twenty million tonne mark. This rise is in the backdrop of merely a 10.6 million tonnes production in 1975-76. The production till 1987-88 could reach a peak of thirteen million tonnes. The feat has been achieved this year due to adequate and timely rains and efforts of some seven million oilseeds farmers in the country, backed by an integrated policy framework developed by the technology mission. This year, the kharif oilseeds production would touch 10.8 million tonnes, five lakh tonnes more than the target. A good crop is expected in the ensuing rabi season due to adequate soil moisture.

The record production has prompted the Agriculture Minister, Mr. Balram Jakhar, to favour a ban on the import of edible oils, a measure, which would benefit the oilseeds farmers.

The major constraint in the production of oilseeds, which is characterised by wide fluctuations, is that majority of the oilseeds area is subjected to the vagaries of monsoon as the crop is being grown under rainfed conditions. Coupled with this, is the fact that a large part of this rainfed area is constituted by marginal and submarginal lands.

Limiting Factor

Another limiting factor for greater oilseed production so far was the long neglect of genetic improvement as the importance of the crop was felt only in the last decade. In fact, the overall national production of oilseeds was quite comfortable upto the early sixties despite low average yields, and oilseeds account for about seven per cent of the foreign exchange earner during 1963-64. In order to make concerted efforts for increasing the productivity and production of oilseeds, research centres have been set up including the Directorate ol oilseeds Research at Hyderabad and the National Research Center for Groundnut at Junagarh.

Due to the dependence of the crop on monsoon, questions are being raised whether the country would be able to mainatin the tempo in production. But Krishi Bhawan officials are confident that the Eighth Plan target of 23 million tonnes of production would be surpassed.

In this regard, they point out that crops like rapeseed and mustard have low water requirement.

Another major factor is the cultivation of oilpalm in a very big way in Andhra Pradesh, Kerala, Orissa, parts of Maharashtra as also the Andaman and Nicobar islands. Experts point out that oil palm cultivation is the best source for attaining self-sufficiency. This is because the oil yield of oil palm per hectars is the highest at around three to five tonnes as against 200 Kg. of oil per hectare under groundnut.

Besides, the country could harness the untapped oil resources from rice bran, cotton seed and minor oilseeds.

The significant increase in the oilseeds production is also due to incentive prices to the farmers in recent years, which changed the earlier scene in which the buyer and the processor benefited the most than the grower. Added to this was the system of market intervention to guard against seasonal price fluctuations. The mission has also succeded in developing forty new high yielding varieties with varying degrees of resistance to drought pests & other stresses. Besides, through the National Dairy Development Board, NDDB, it initiated oilseed growers cooperative federation in various States. A buffer stock is also being built by the NDDB. Private sector companies are also coming in a big way in boosting the oilseeds production. The record production showed that the country is for an oilseed revolution. Gone are the days when oilseeds had become the sick segment of Indian agriculture. ☐

(Courtesy-AIR)

ONGC Strides Ahead In Western Region

S.K. Panigrahy

The Western Region of Oil & Natural Gas Commission which is spread over Ankleswar, Ahmedabad, Mehsana and Cambay, is poised to acquire new distinction in the VIII Five Year Plan period. The oil production from the region which was over the six million tonnes during 1991-92 is expected to increase to over 8 million tonnes by the end of VIII Five Year Plan. Since most of the fields in Gujarat are old, ONGC is facing the problems of oil pressure maintenance and maintenance of reservoir energy for getting maximum possible recovery of oil and gas. The organisation has adopted a number of new technologies and try them in various fields in order to increase the level of output.

One such method is water injection scheme which is given top priority in operation at Kalol, Sanand and Navagam fields of Ahmedabad. The scheme is already being implemented in Pansar, Vasna and in Navagam. In South Gujarat, it is being carried out in Ankleswar and Gandhar fields.

Four such enhanced oil recovery pilot projects have been commissioned at Sanand, Jalora and Balol fields of North Gujarat. Another 4 projects, viz., pilot insitu combustion at Lanva, Micellar Polymer Pilot Project at Ankleswar, Steam Flood Pilot at Balol and carbondioxide injection at Kalol are also planned to be implemented. Efforts are on to reduce to number of six wells.

Prospective Area

In the field of gas, ONGC is doing well. About 3.6 million c.m. gas per day is being supplied to about 60 units. These units are located at Baroda, Ahmedabad, Kadi, Mehsana, Ankleswar, Bharuch and Cambay. Availability of gas has helped in the development of ancillary units. This has added to availability of goods and services and generation of employment of hundreds of people.

The gas supply, in addition to feeding the power plants, fertilizer units, dairies etc. has proved a boom to lakhs of housewives at Ankleswar, Bharuch and Baroda. The distribution of gas has recently been transferred to the Gas Authority of India Ltd. (GAIL) which handles all the agreements with future customers.

Reduction of flaring of gas is another area for which all efforts are being made. At present only low pressure gas which cannot flow on its own is being flared. Efforts are made to reduce the flaring to the minimum level by implementation of various zero flaring schemes. It is expected that except for technical reasons there will be no gas flaring in north Gujarat from February 1993 and in south Gujarat from March next year.

Since inception, ONGC has made investment of more than about Rs. 3,600 crore in this region. It has paid nearly Rs. 1,440 crore so far as royalty and over Rs. 587 crore as sales. tax to the Government of Gujarat which is a significant contribution. Besides, a cess of Rs. 3,048 crore has been paid to the Central Government.

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Essay Competition

To commemorate the Centenary of Swami Vivekananda's Bharat Parikrama and his address at the Parliament of Religions at Chicago, Yojana (English) is organising an essay competition open to its subscribers only. The theme of the essay is : Swamiji's Bharat Parikrama, the Chicago Address and the message of Unity and Amity. The essay should be of about 1500-1600 words. The participants should mention their subscription number prominently. They should write on the top of the envelop "Essay Competition". There will be three prizes viz, First Prize : Rs. 1000/-, Second Prize : Rs. 800/- and Third Prize : Re 600/-. There will also be two consolation prizes of Rs. 400/- each. The prize winning essays will be published in September 1993 issue.

The last date for receipt of the entries is 31.7.1993.

Understanding Rural Women Through Participation

Dr. Neela Mukherjee

THE present paper seeks to illustrate the gender aspects of rural life based on field experience and learning. Its main theme of analysis is differences in perceptions of rural women vis-a-vis rural men which make for differences in understanding and appreciation of rural issues.

The importance of perceptions of rural women can hardly be over-emphasized. Their role in society, their problems, priorities and capabilities, if truly appreciated, it can lay the foundation of a gender-based approach to rural development much stronger and productive than that of earlier decades. The rural woman as a mother, as partner in a rural household and as a member of rural society and the nation as a whole performs functions which are both critical and burdensome, much of which are not always visible and tangible in terms of economic output. Strengthening the position of rural woman through complementary inputs would mean strengthening of her capabilities and performance which would get reflected in her contributions to village life in particular and to the progress of the nation in general.

Why should rural women have perceptions different from men ? Some of the reasons can be as follows :

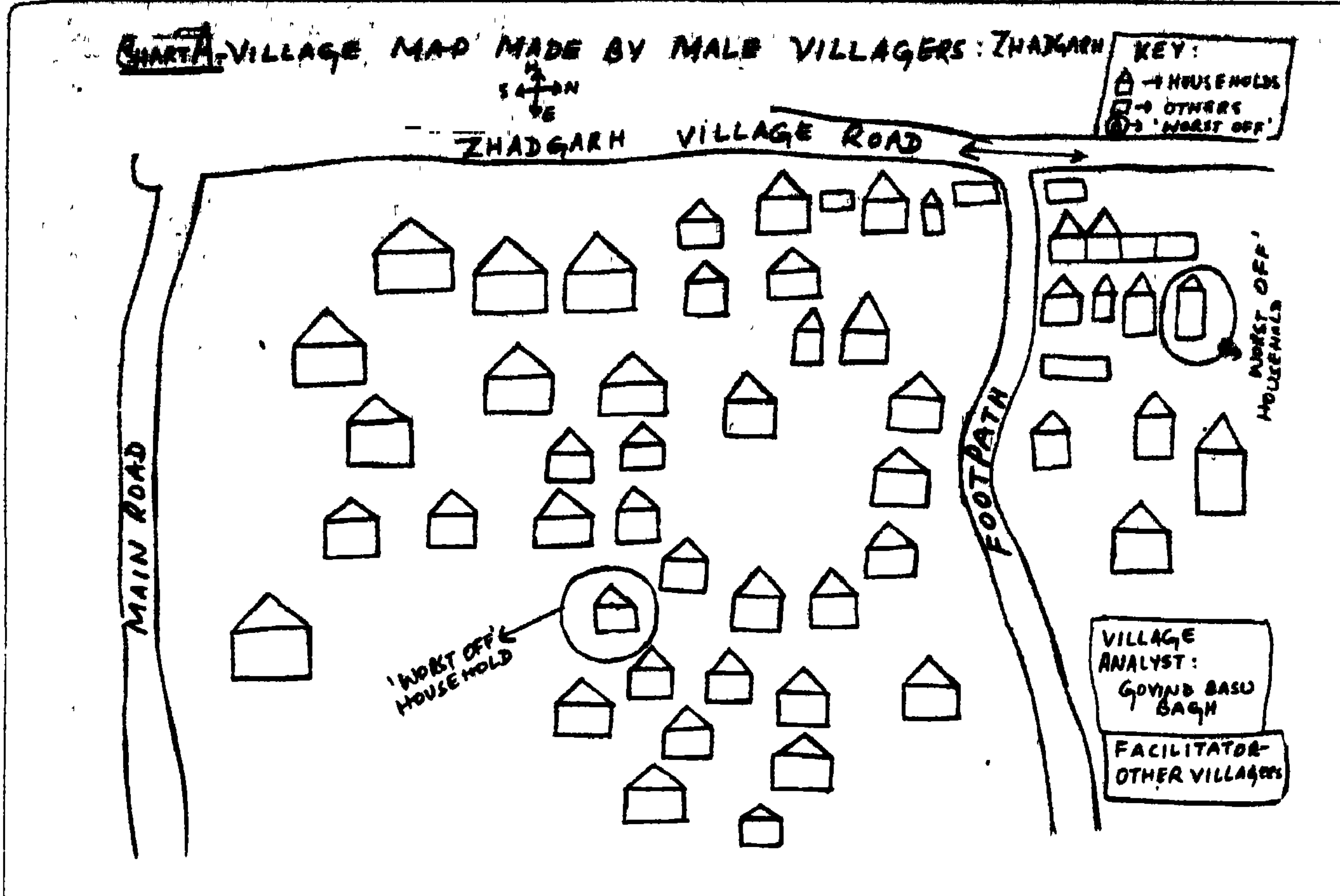
The up-bringing, values, beliefs and customs of rural women can make them see things in a different perspective than those of men. The nature of work and experience of rural women can also influence their perceptions considerably than those of rural men. Their role in society is different and hence, their problems and priorities are also different from men. Their decision making capacity through direct participation can help in identification of their problems, preferences and ways and means to resolve them

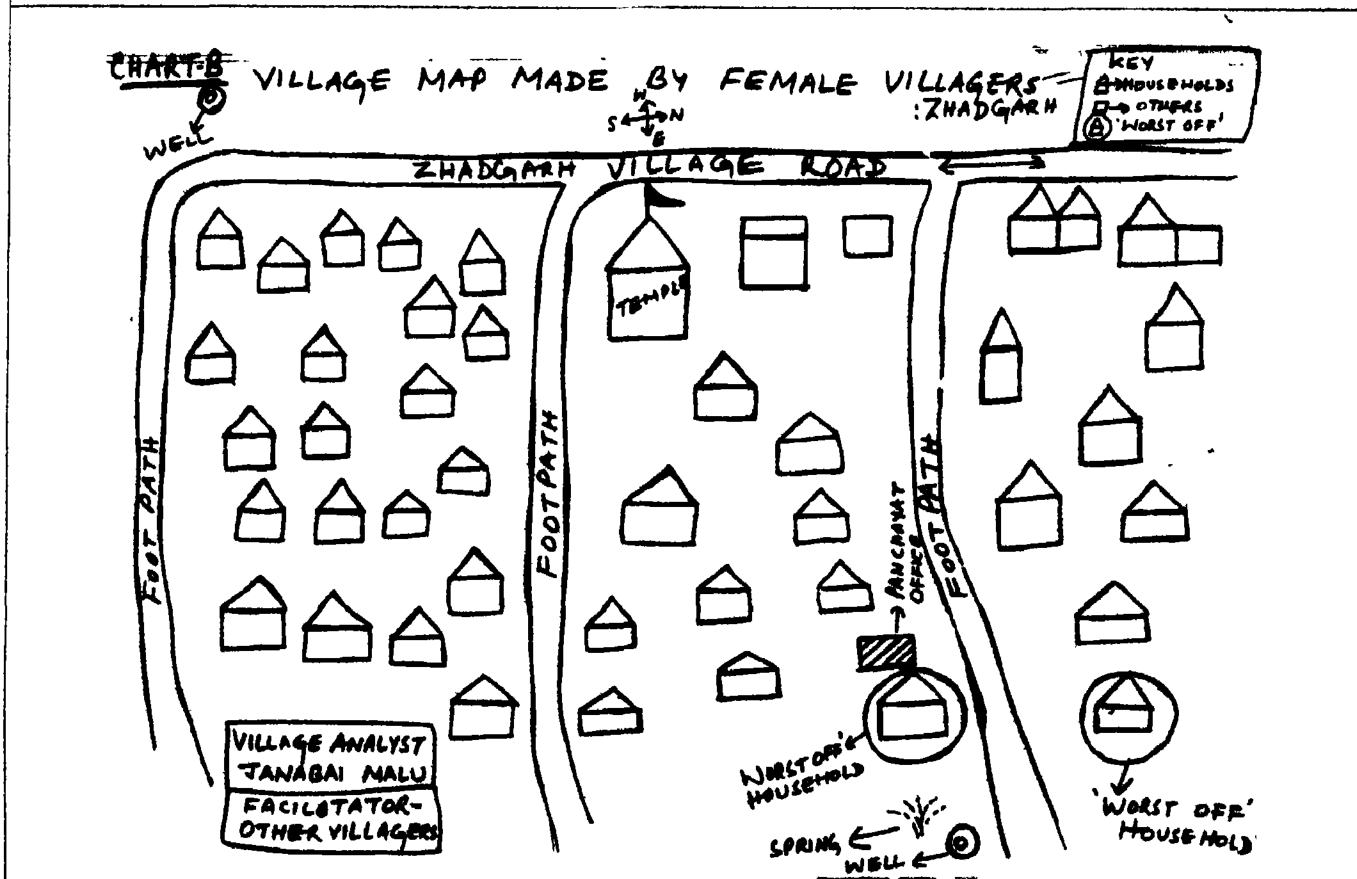
Aspects of gender can be revealed through participation of both females and males in rural areas. Participation, voluntary in nature, would relate to villagers expressing their views and opinions, their knowledge and beliefs, their priorities and preferences and their problems and ways of resolving them whether by themselves or in collaboration with others. Communication with villagers based on trust and friendship can help in making them participate in a free and relaxed manner.

In rural areas, participation of men is relatively easier than that of women Rural women may show reluctance to participate for many reasons. They are often busy in their households and farm work and are unable to find enough time for participation. Some of them may feel inhibited to participate for reasons such as lack of confidence, family pressures, customs etc. while others may take time to gather courage to express themselves. Sometimes their voices are dominated by those of males and they feel less confident to present their views. On account of the reasons mentioned above participation of rural women may not be easily forthcoming. We may feel tempted to leave them out and not to approach them because of the difficulties involved in interacting with rural women. This, at best, would be professionally convenient but of little use in eliciting rural perceptions.

It is important that the facilitator interested in participation of villagers is able to establish rapport with both female and male villagers so as to generate their interest in participation. A team of facilitators with both men and women in it would be better.

For effective participation both verbal and visual methods are important. Verbal interviewing of villagers can be through a series of questions of which some are prepared beforehand while others are framed according to the situation at hand. Such interviewing can be useful in knowing the villagers and seeking their cooperation. Verbal methods of villagers narrating their case histories can also provide knowledge and insights about their problems and their background. The visual participatory methods of mapping, ranking and seasonality help us to appreciate their way of thinking, priorities and preferences. Any discussion is enriched by visual diagrams. For instance, a village map made by villagers is open for individual/group discussions and provide a tangible base for verbal discussions. Visual methods can reveal perceptions and perferences,


CHART A - VILLAGE MAP MADE BY MALE VILLAGERS : ZHADGARH
KEY:
→ HOUSEHOLDS
→ OTHERS
→ 'WORST OFF'
N
S
N
E
ZHADGARH VILLAGE ROAD
MAIN ROAD
FOOTPATH
'WORST OFF' HOUSEHOLD
'WORST OFF' HOUSEHOLD
VILLAGE ANALYST : GOVIND BASU BAGH
FACILITATOR- OTHER VILLAGERS


CHART-B VILLAGE MAP MADE BY FEMALE VILLAGERS : ZHADGARH
KEY
HOUSEHOLDS
OTHERS
'WORST OFF'
WELL
ZHADGARH VILLAGE ROAD
TEMPLE
FOOT PATH
FOOT PATH
FOOT PATH
PANCHAYAT OFFICE
WORST OFF HOUSEHOLD
'WORST OFF' HOUSEHOLD
SPRING
WELL
VILLAGE ANALYST JANABAI MALU
FACILITATOR- OTHER VILLAGERS

quantitative and qualitative measurements, judgements and comparisons of issues at hand which are otherwise hidden and obscure.

Different Perceptions

To show how gender perceptions differ a case study has been described below. The case study relates to hamlet Zhadghar of village Zhadghar, a tribal village in Thane district of Maharashtra The hamlet consists of 48 households, most of which are small and marginal farmers and landless labourers

The villagers formed into two groups of 12 to 15 each—one group of women and the other men These two groups were asked to prepare village maps depicting different households, roads, water bodies and other structures The group of men started drawing the map of the ground with coloured chalks The women group was not so quick To start with the group was slightly hesitant but after some time it got over the inertia and started drawing the village map on the ground.

After about ninety minutes there were two maps of hamlet Zhadghar ready on the ground, one by males and the other by females. The maps depicted households, other structures, sources of water, roads etc. Each household had the number of members (adult+child) described below it. The maps were broadly similar yet different in some respects. One major point of difference was the omission of foot paths except one in men's map while the women's map had made the footpaths quite prominent. The men's map had village roads drawn on them in greater detail. The footpaths were being daily used by the village women for collection of fuelwood, fodder and water It were the women who collected fuelwood etc. from nearby forests and water from wells located near the village The men were aware of these footpaths but did not find them of relevance as found by women In the map done by the village women the footpaths stood out clearly and boldy more in terms of relevance than proportions.

On completion of the village maps by the male and female groups (see Chart A and Chart B) both groups were asked to point out those households which they considered as 'worst off' in the hamlet in terms of their socio-economic position. The response of the two groups were strikingly different. The female group indicated two widowed households as 'worst off' of which one widow was blind in one eye while the other widow's livelihood was dependent on rearing and selling of goats. Both households according to the female group were the most deprived.

On the other hand, the male group identified two male-headed households on the village map which according to them were the 'worst off' in the village. One such household had 5 adults and 3 children and owned no land. They were unemplyed most of the time and did not have knowledge of the traditional craft of the village which is basket-making. Another 'worst off' household owned a hut under an official programme but had no land It did not have children as well

On probing further into the socio-economic ranking by the two groups of male and female villagers their differences in perceptions of well-being became more clear For the male group, ownership of land and employment opportunities were important indicators of well-being. On asking the male group about the well-being ranking done by females it was of the opionion that both the widowed households considered as 'worst off' by the female group owned some land The widow blind in one eye had a small piece of agricultural land which she had lent to some person for cultivation. The other widow also owned some forest land which she had earlier encroached. Hence, according to the group of male villagers the two widowed households were better placed than those households which the female group thought were 'worse off'

For the group of female villagers, deprived social status and physical handicap were more important considerations for well being than ownership of land and employment opportunities. On this basis they had marked the 'worst off' household. The village women did perceive that socio-economic deprivation of the two widowed households were more on account of their widowhood and handicapped life. It also showed how social considerations mattered more for the female group. Whereas, the group of male villagers seemed to be more practical and perceived economic factors more important than social ones.

This is a case study which brings out gender differences in perceptions of the same village and the relative importance of factors considered for comparisons of well being. Both verbal and visual methods of participation were used to elicit perceptions from women and men groups. Verbal method of semi-structured interviewing helped initially towards rapport-building with the villagers and to solicit their interaction in a relaxed and open manner. Questions about their village, traditional craft, daily routine etc. helped to generate their interest in participation.

Visual methods of making maps helped the discussion to move on the basis of the village profiles prepared on the ground Both the maps helped in comparison of gender perspectives. Without making of the two maps, perceptions regarding the relative importance of the footpaths and roads to the women and the men groups would not have got reflected. For expl. through a semi-structured interview much of such perceptions would have remained hidden. The maps also facilitated identification of households for comparison of well being. The two groups were revealing

Contd. on page 30

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Problem Of Sustaining Gains Derived From Land Reforms

Dr. T. B. Lahiri

LAND is the most important capital of rural India where more than 70% of country's population live. The central objective of land reforms is to make available this capital to as many actual cultivators as possible with the expectation that it would lead to relatively higher rate of agrarian growth with social justice.

From time to time, Legislations to safeguard the interests of cultivators including tenants have been made even under the British Raj. Commitment to really meaningful land reform is a part of the heritage of national freedom movement. However, in contemporary India, evolution of the comprehensive land reforms policy is mainly based upon the recommendations of the Congress Agrarian Reforms Committee set up in December, 1947 under the Chairmanship of J. C Kumarappa. The salient facets of land reforms policy adopted were :

(a) abolition of intermediates and bringing tenants in direct contact with the Government;

(b) tenancy reforms with a view to providing security to actual cultivators of land against eviction;

(c) redistribution of land by imposition of ceiling on agricultural holdings;

(d) consolidation of holdings; and

(e) updating of land records.

Of these, I would examine only one aspect of land reforms, viz., redistribution of agricultural land following enactment of ceiling laws and its sustainability. Ceiling legislations have been enacted by all States except Goa and N.E. States on the basis of national guidelines given in 1972. In consequence, some 72.2 lakh acres have been declared surplus. But till March, 1990, 46.5 lakh acres have been distributed and 25 7 lakh yet to be distributed.

Notwithstanding this not very satisfactory performance, it must be said that India's Land reform programme presents one of the world's largest land re-organisation. This has special significance because it is being executed within a free market of land and land use unlike socialist systems It is also to be noted that India's complex tenure system with layers and sub-layers has perhaps no match in the world. And, other constraints were neither very feeble; viz.,

(a) In a democracy where questioning is rather unrestricted, it was raised as to why there should be a ceiling on agricultural land when there is no ceiling on income or assets in other sectors of economy. Of course there is an answer, that land is by and large fixed (and scarce thereby demanding some kind of ration), whereas other assests can be progressively built upon and not in-elastic.

(b) In Indian federal structure, some States took unduly long time to bring the law on the statute book. For instance, in U.P., 4 and a half year lapsed between the original resolution and eventual enactment.

(c) Low rate of compensation: Land above ceiling had to be surrendered at a pre- determined price much lower than the market price. In U.P., this price was equal to only 10 years rent and in Hyderabad 8 years. This factor might have worked, among others, behind efforts of erstwhile landlords to block implementation of land ceiling laws through prolonged legal battles.

Within these constraints, performance of the States in land redistribution may be viewed (see table). Naturally, there are gaps between amount of land declared surplus and amount of land redistributed. The National average is 74.83% but States like Haryana, Punjab, Orissa and Tamil Nadu stand much above. Bihar, Kerala and M. P. stand below the average.

However, despite formal redistribution it may not look very unimpressive but as stated by Minister of Planning in a seminar on Land Reforms held in New Delhi, 7-8 June, 1989, some 30% of cultivated land is still under oral and informal tenancies.

Against this background the issue of sustainability vis-a-vis operational agricultural holdings created through land redistribution is to be discussed. The basic questions are:

What is the size of farm in different agro-climatic zones which provides :

(a) minimum necessary income;

(b) full employment of the animal and manpower of the family.

Size Of Holding

Farm management date shows that under common agricultural practices and techniques, on an average, farm-size requirement varies from 7.5 acres to 10.0 acres per family. Dantwala felt that size of holding to be economic should not be less than 5 acres. Dantwala commented that 2 ha or 5 acres is the minimum size of holding required for the maintenance of a family of five souls. Farmers below that holdings can hardly produce any surplus to effect transformation form subsistence to commercial farming after paying necessary expenses on agricultural inputs. The data presented in the table will show that size of land distributed per family is far below than the requirement. The National average is only 1.07 acre per family and the range is between 5 68 acres (Rajasthan) to 0 47 acre (Kerala).

And, productivity of land in Rajasthan may not compare favourably against the national average. Although, for beneficiaries the land received through re-distribution may not be the only parcel of land. As for example, in West Bangal, besides landless peasants, owners of Small holdings (around one acre, depending upon family size) have also been granted land through redistribution (selection of beneficiaries is made at Panchayat level) Still, even combining all sources, as per farm management findings show, does not suggest viability. The situation may be more clear through an analysis of the Karnataka example.

In Karnataka, SC & ST account for about 62% of total beneficiaries against the national average of 49.3%. As it may be seen from the table, beneficiaries in Karnataka have received on an average a much larger parcel of land (3.96 acres) than the national figure (1.07 acre) per family. So, beneficiaries in Karnataka are better placed and therefore should present brighter results of land redistribution. However, analysis of the situation does not provide much assurance.

Level of Land-Ceiling Laws Implementation By Some States upto March, 1990

State	Area declared surplus (000 acres)	Area taken possession (000 acres)	Area distributed (000 acres)	% of col. 4 of col. 3	Total No. of Beneficiaries (000)	Average size of land distributed (Acres)
1	2	3	4	5	6	7
Andhra Pradesh	698.1	533 6	412.8	77.3	352.3	1.17
Assam	605.6	545.1	400.2	73.2	370 0	1 08
Bihar	474 6	376 2	253 6	67.3	293.4	0.86
Gujarat	248 8	152 7	107 9	70 6	24.5	4.40
Haryana	121 3	113 4	112.9	99.6	37 9	2 98
Himchal Pradesh	284.1	281.5	3.3	1.07	4.4	0.75
Jammu & Kashmir	456 0	450 0	450.0	100.0	450 0	1.00
Karnataka	284 9	156.9	114 1	72 6	28 8	3 96
Kerala	130.0	92 3	62.2	67.4	131 8	0.47
Madhya Pradesh	315 3	257 9	168 9	65.5	64.1	2.63
Maharashtra	704 3	624 1	524 6	84 0	132 3	3.97
Orissa	173 7	158.9	146.1	91.2	123.6	1 18
Punjab	138.8	103.7	101.2	97.1	26.1	3 88
Rajasthan	619 1	547 7	420.3	76.6	74.2	5.68
Tamil Nadu	173 1	166 8	135.9	81 4	110 8	1 23
Uttar Pradesh	523 1	495.6	355 6	71 7	301 5	1 18
West Bengal	1259 1	1142 9	869 1	76.03	1828 3	0.48
Total (A I)	7226 2	6213 2	4649 2	74 83	4360 5	1.07

Source : *Ministry of Rural Development*

The situation in Karnataka has been examined form data collected from districts of Bijapur and Dharwar. In general, surplus land distributed in Karnataka is of poor quality requiring substantial investment to make it productive. Here, utilisation of beneficiaries' land is mainly confined to kharif season which is in contrast to the non-beneficiaries. There is very limited use of beneficiaries' land in rabi season :

Area	% of land used in rabi season	
	Beneficiaries Land	Non-beneficiaries Land
Bijapur District	3 1%	20 8%
Dharwar	14.4% (one of the best)	15.0%
Karnataka Average	5 3%	19 10%

This low level of land use intensity of beneficiaries is due to their inability to meet necessary requirements of land development. Naturally, on an average annual income of beneficiaries is hardly 2/3rd of non-beneficiaries. Another noteworthy point is their respective sources of income :

Source of income		Beneficiaries	Non-beneficiaries
Land:	Bijapur	21 1%	33 7%
	Dharwar	39.6%	64.1%
	State overall	29.0%	47.5%
Wages ·	Bijapur	67 9%	34.7%
	Dharwar	57.3%	28 6%
	State overall	63 4%	31 9%

Comparatively disadvantageous position of beneficiaries so far as agrarian activities are concerned is also reflected in data given below :

	Beneficiaries	Non-beneficiaries
Cost of hired bullock power	40 9%	19 1 %

Thus it is seen that economic benefit of beneficiaries has been only marginal as :

(a) land use intensity of land gained is very low for lack of necessary development inputs

(b) they continue mainly as wage earners.

In this connection, the statement of Shri B.V. Krishna Murthy may be recalled that, "poorest land has been given to the poorest poeple"

Who Benefits

Therefore, theoretically speaking, social status derived from land gains notwithstanding, it may not be easy for the beneficiaries to hold the benefit of land reforms So when studies reveal that some 30% of cultivated land is still under oral and informal tenancies, it would not be surprising if this silently encroaching hand has also found in its grip quite a few beneficiaries land Even in West Bengal, where political vigilance is quite strong, though such number may be quite few, there are cases of reversion

It has no legal validity but that did prevent registration of such transfers('parcha' recorded by L R. Department is the legal document of land ownership) and getting returns out of the land In Gujarat, a study by Gandhi Labour Institute shows that in highly developed villages producing HYV cotton, large farmers were leasing in and small farmers leasing out land—a form of reverse tenancy

A ready answer to this problem which is by and large latent now is not visible on the horizon. However, one avenue might be consolidation of holdings which is a part of land reforms programme. However, progress in this sphere is still very modest. Of the 4.6 million acres distributed upto March 1990, only 1.5 million acres or about 32% of redistributed land has been covered under consolidation programme. Though, 15 States have already passed laws for consolidation of holdings (A P., Tamil Nadu, Kerala, Pondicherry and N.E. States are yet to enact). This process had been more successful in Punjab, Haryana and parts of U.P. Naturally consolidation is likely to be more successful in areas which are irrigated by canals as it carries prospects of better management and greater productivity. It is to be noted in this connection that tenants, share-croppers and small land owners are afraid that consolidation may favour larger farmers.

Problem of sustainability is not associated with benefits of land reform only. As a matter of fact, such fragility evident or potential, is perhaps in the constitution of almost all poverty alleviation programmes. Not much of research has been carried out so far to present nation-wide ground reality as it exists. This appears to be an urgent need. □

The author is Director, Centre of Micro Planning, National Institute of Rural Development, Hyderabad.

Land Reforms And Land Records

IN the rural society, where land is the most relevant source of living for a large section of the people, and the rights on land, however small in area, confer socio-economic status and dignity, the importance of land reforms and land records needs no emphasis.

Land reforms have been on the national agenda of rural reconstruction for a long time, particularly since Indepeudnce. The major objectives of land reforms consist of reordering agrarian relations to achieve an egalitarion social structure; enlarging the land-base of rural poor; increasing agricultural productivity and production; and infusing equality in local institutions. The major components of the strategy of land reforms have been the abolition of intermediary tenures; tenancy reforms; ceiling on ownership of agricultural holding; consolidation of holding; distribution of Government wastelands including Bhoodan land; modernisation and updating of land records system; conferment of ownership right on homeless persons; special measures for protection of lands of Scheduled Castes and Tribes; improving the access of land to women and safeguarding of common property resources.

Closely linked with land reforms is the issue of land records Apart from the importance of land records from the point of view of land revenue, the land records are to be looked upon as a means for ensuring social justice in rural areas, crucial documents for the effective implementation of land reform measures particularly for identification of surplus lands and tenancy; identification and demarcation of Government lands and village common lands; and constituting the data base for implementation of rural development and agricultural programmes. The absence of correct land records has often been responsible for many land disputes to the disadvantage of the poor. The modernisation of the land records system and making them more accessible and relevant to rural people is, therefore a matter of considerable importance.

The abolition of intermediaries carried out in the wake of independence did serve the purpose of establishing direct contact between the 20 million peasants residing in almost 40 per cent of the country's geographical areas and the State. However, it also led to the emergence of a powerful land owning class with highly skewed distribution of land resources.

Legislations for imposition of land ceiling and acquisition of the surplus land were enacted by most of the States in the fifties and sixties. However, many of these legislations suffered from infirmities and contained loopholes. It was only in July, 1972 that the National Guidelines on land ceilings were evolved in a Conference held by Prime Minister and the States modified or enacted the ceiling laws accordingly.

The Prime Minister, in his independence Day Address in August,1991, referred to the poor maintenance of land records as one of the causes for rural conflicts. In the Conference of Chief Ministers held at New Delhi in October, 1991, it was unanimously resolved that as land constituted one of the major causes of atrocities on the weaker sections of the society, all surplus ceiling land should be distributed by31st March, 1992.

In March, 1992 a Conference of the Revenue Ministers was held by Prime Minister to consider measusres for speedy implementation of land reforms Three Sub-Committees were set up at the Conference and the Sub-Committees made recommendations on Land Ceiling and Distribution of Surplus Land, Land Records, and Bhoodan Land. Amongst others, the Conference decided that all surplus ceiling land free from litigation will be distributed by 30th June, 1992 and at least 75% of the extent of land covered by litigation and pending before revenue courts would be freed from litigation and distributed by 30th September, 1992 All the Bhoodan lands are also to be taken possession of and distributed by March, 1993. The Prime Minister in his Independece Day address to the nation in August, 1992 again referred to the priority being accorded to land reforms and observed that though some progress has been made in the distribution of ceiling land after the Conference much remained to be done.

Land Ceiling And Distribution Of Ceiling Surplus Land

Introduction of ceiling on agricultural holdings has been one of the main planks of the programme of land reforms. It fulfills the objective of a more equitable distribution of land resources. It also seeks to provide an intrinsic satisfaction to the landless millions of the rural society

either in the shape of a small plot of land or a hope for the future. Land constitutes not only a means of production in the rural society, it also confers social dignity and status.

There has been a wide gap between the expectations and the achievements of the land ceiling programme. The following major factors have generally been identified as the reasons for the shortfall.

(a) Provision for holding land up to twice the ceiling limit by families with over five members.

(b) Provision to give separate ceiling limit for major sons in the family.

(c) Provision for treating every share holder of a joint family under applicable personal law as a separate unit for ceiling limits.

(d) Exemption of tea, coffee, rubber, cardamom and cocoa plantation and of lands held by religious and charitable institutions beyond normal ceiling limits.

(e) Benami and farzi transfers to defeat the ceiling law.

(f) Delay in the disposal of cases before fthe administrative and judicial courts.

The total area declared surplus by june, 1992 is 72.81 lakh acres out of which 63.53 lakh acres have been taken possession of. A total area of 49.75 lakh acres has been distributed to 47.59 lakh beneficiaries (Annexure- I & II).

Subsequent to the Conference of Chief Ministers in October, 1991, when it was decided that all ceiling surplus land should be distributed by 31st March, 1992, a letter was addressed by the Prime Minister in November, 1991 to all Chief Ministers of the States where substantial areas of ceiling surplus land are yet to be distributed. The Minister of State for Rural Development, also addressed letters to the Chief Ministers in November, 1991. It was also emphasised that the State Governments may take necessary steps to set up special tribunals to speed up the disposal of cases held up by litigation.

It was specially decided that all available surplus land free from litigation should be distributed by June, 1992. It was also decided that 75% of the land involved in litigation in Revenue Courts must be freed from such litigation to make it available for distribution and this distribution be completed by 30th September, 1992.

The State Governments were accordingly requested to take all necessary measures to fulfil the commitment made in the Revenue Ministers Conference. As a result of vigorous follow-up, the State Governments have reported distribution of nearly 1.62 lakh acres of land of available surplus land till August, 1992 It was observed that while the performance of States like Andhra Pradesh, Assam and West Bengal has been commendable, greater efforts are required to be made.

Issues For Policy Intervention

A large number of landholders have managed to evade the law. Advances in agriculture technology have changed the production—sustenance relationship. Smaller holdings are in a position to support larger population. What is required is reorientation in the ceiling programme to adjust to the changed requirements

It has been the common experience that the proceedings before the Courts have proved dilatory; the Courts have not been in a position to undertake expeditious disposal. The States have been advised to constitute Land Tribunals under Article 323-B of the Constitution. Laws have been passed in a States of Bihar, Kerala, Tamil Nadu and West Bangal for constituting Land Tribunals under the provisions of Article 323-B of the Constitution for disposal of cases relating to land reforms. In Bihar, the provisions of the law providing for constitution of a Land Tribunal have been set aside by the Patna High Court; but the State Government has gone in appeal in Supreme Court whose final verdict is awaited. In Karnataka, the State Government has requested the High Court to set up special tribunals to dispose of land reforms cases pending in High Court or to earmark separate Benches for this purpose. The Divisional Commisssioners have also been requested to file caveat in the High Court whenever land tribunals determine surplus lands. Where the States do not consider it expedient to constitute the Tribunal, or while it is in the process of being constituted, the High Cort may be requested to set up a Special Bench for dealing with the land cases.

The ceiling legislations have become far too complex and rigid on account of frequent amendments and judicial pronouncements. There is an urgent need for simplification of laws.

Provision of a cut off date with effect fonn 24th January, 1971 makes land ceiling appear as a one time exercise. Dynamic concept of land management, on the other hand, demands that it should be a continuous process. The landholder should be required to intimate to appropriate authority as soon as land becomes surplus and surrender the same.

It may be considered whether the separate units for major sons may be dispensed with and they may be taken as members of the family unit for computation of ceiling in the future.

A survey in respect of 'benami' and 'farzi' transactions should be carried out with the help of beneficiary organisations and social activist groups.

The failure in implementation of ceiling laws in many of the States has been mainly due to lack of administrative efforts An element of

Annexure-I

Achivements in Implementation of land ceilings.
(30th June, 1992)

(All India) (in Lakh)

Returns Filed (in Nos.)	15.92
Returns Disposed (in Nos.)	15.67
Area Declared surplus (Acres)	72 81
Area Taken Possession (Acre)	63.53
Area Distributed (Acres)	49.75
Area Declared Surplus But Not Distributed (Acres)	23.06
No. of Beneficiaries (in Nos.)	47.59
Area not Available (Acres) Litigation at Various Levels	10.71
Reserved/Transferred for Public purposes	3.82
Unfit For Cultivation	5 03
Misc. Reasons Like Inclusion within Municipal Limits, Order of Return By the Superior Court etc.	2 61
Net Area Availabe for Distribution (Acres)	0.89

Annexure-II

Land Ceilings Achievemnets - State-wise

(Area in Lakh Acres) (30th June.1992)

States/Uts	Area Declared Surplus	Area Taken Possession	Area Distri-buted	Bene (in Lakh)
1. Andhra Pradesh	7 29	5 49	5 04	4 19
2. Assam	6 10	5.49	4 62	4.03
3. Bihar	4 75	3.96	2.77	3 27
4 Gujarat	2 52	1 55	1.32	0.29
5. Haryana	1 21	1 15	1 13	0.38
6. Himachal Pradesh	2.84	2.82	0.03	0.04
7. J&K	4.56	4.50	4.50	4.50
8 Karnataka	2 71	1 56	1.15	0.30
9. Kerala	1.35	0.93	0 64	1.40
10. Madhya Pradesh	3.21	2 75	1.83	0.70
11. Maharashtra	7.04	6 24	5 26	1.33
12. Manipur	0 02	0.02	0.02	0.01
13 Orissa	1.73	1 62	1 49	1 27
14 Punjab	1 38	1 05	1 02	0 27
15. Rajasthan	6 07	5.50	4 38	0.76
16 Tamil Nadu	1 82	1 71	1 46	1.21
17. Tripura	0 02	0 02	0.02	0.02
18. Uttar Pradesh	5 38	5 06	3 64	3.14
19 West Bangal	12.69	12.01	9 36	20 44
20 D&N Haveli	0 09	0 09	0.06	0.03
21 Delhi	0 01	Neg.	Neg.	Neg.
22. Pondicherry	0 02	0 01	0.01	0.01
Total .	72 81	63 53	49.75	47.59

accountability should, therefore, be introduced at all levels of the administration with clearly defined responsibilities.

The land ceiling drive has been hampered by an inadequate and inaccurate record base. There should be effort for both short term and long term improvement in the record base, making full use of modern technology. It has been found that cases remain pending too long for disposal before revenue courts, sometimes, for as long as twenty years. There should be a time bound disposal of cases by the revenue courts.

Surplus land should be allotted to the SC/ST landless of the same village in order of priority. Where such eligible persons are not availabe allotment should be made to the SC/ST landless of the neighbouring villages. Where even such persons are not available the allotment should be made with the landless Backward Classes and with other categories. Karnataka has recently earmarked 75%of surplus land in favour of SC/ST as a part of the Dr. Baba Saheb Ambedkar Centenary efforts. This may be considered by other State Governments.

At least 40% of the allotment should be made in the name of female members of the household and the remaining jointly in the name of housband and wife. This will lead to enhanced status of women in rural society.

Nearly 3.82 lakh acres of land have been reserved for public purposes. The States should review the land reserved for public purposes and distribute such land as may be available out of this to the landless poor.

There should be a dovetailing of the benefits under IRDP, JRY and agriculture programmes to the ceiling surplus land allottees for a quick take off beyond the poverty line. Post allotment support should form a deliberate strategy of the anti-poverty programmes.

A detailed survey of the ceiling surplus land already distributed should be conducted and spot restoration should be made in respect of such land which have been dispossessed in a time bound manner.

It is essential to enlist cooperation from public preferably from the prospective beneficiaries themselves. The organisation of beneficiaries should be associated with the implementation right from the survey to the final stage of distribution.

Local self-government institutions like Gram Panchayats, Zilla Parishads, voluntary and non-Governmental organisations should be associated with the implementation and monitoring process at all stages. There should be specific provision that these bodies can be impleaded into the proceedings. □

(Courtesy . Ministry of Rural Development)

The Great Visionary

Dr. A. Kalappa

Dr. Ambedkar was a man of strong convictions. His philosophic bent was inlaid with scientific rationality. He was a pragmatist in practice and an idealist in thinking. Social democracy, class struggle for social justice, economic equality and political freedom were dear to him. The time-honoured econmic institution '*Varnashramadharma*' which perpetuated caste and casteism in the country was repugnant to his concept of a nation. He felt that multitude of castes came into existence owing to the inter-mixture of these *varnas*. He considered that caste system was the greatest hurdle for its progress. It was not only a hurdle to the mobility of labour and capital, it also perpetuated the traditional socio-economic order which was detrimental to the growth of the economy. A champion of human rights, he believed that practice of untouchability is worse then slavery. He wrote "untouchability is not only a system of unmitigated economic exploitation but is also a system of uncontrolled economic exploitation" (What Congress and Gandhi Have Done to Untouchables, PP-196-197). State Socialism, agrarian reform, industrialisation and introduction of a new form of collective farming according to him, would provide social status and economic equality to the downtrodden. His contributions to monetary economics and public finance were of no mean order. While he advocated active involvement of the Government in economic development, the plea was to free the economy from monopolies and totalitarianism. The State Socialism aimed at providing larger opportunities for employment and production both in agriculture and industries. His life's mission and thrust was on eradication of poverty, elimination of inequalities, creation of social awareness and putting an end to exploitation of the masses, particularly the downtrodden. Babasaheb's concept of the role of the State included its intervention in socio-cultural change in the status and position of SCs and STs. However, pragmatist as he was, he also visualised the ultimate integration of this section into the mainstream. Thus Babasaheb's innate quality of leadership and statesmenship to fight against the socio-economic evils within the framework of our constitution militated against the present day trend of separation, militancy and terrorism.

Determination

Dr. Ambedkar realised that he must equip himself with the best education and gain social status to revolt against the long established social order. Inspite of being born in a poor *mahar* family, he acquired the highest education, both within and outside the country by sheer will power, hard work, patience and brilliance. Inspite of social boycott and threats to his life, his strong will, courage, education and leadership qualities enabled him to stand as one man against the social orthodoxy. He made this a crusade, his life's mission.

He visualised that realisation of his objectives without political sanction would be an uphill task. Thus he entered politics, won elections and strongly pleaded for his cause both with the State and Union Government. He desired to bring a structural change in the socio-economic conditions of the suffering millions through political intervention. But lack of political cohesion in many issues, as in the case of Hindu Code Bill, widened his differences with Mahatma Gandhi and Nehru. Though some of the issues like eradication of untouchability, compulsory and free education, socio-economic equality, better status for women, constitutional protection on civil rights etc., received political sanctions, but most of his objectives have remained unrealised. Consequently even those benefits guaranteed by constitution, such as poverty alleviation and other measures were diluted in the process of implementation and have not percolated to the deserving.

Is there a solution to the age old sufferings of the miserable ? One way out is in educating the downtrodden and creating awareness on its constitutional rights and privileges. Though this is a time consuming process, systematic efforts through formal and informal education would help realising this objectives atleast by the turn of this century. More residential schools, colleges, vocational training institutions and youth hostels should be opened to educate and train the SC/ST youth.

The present omnibus approach by the national and state commissions appointed for the welfare of SC/ST lack teeth. They must be given wide powers to administer the development programmes and functions as enshrined in the Constitution. These bodies should function independently of political and bureaucratic authorities. They should be financially and administratively autonomous and directly responsible to the legislature. Further, such commissions for the uplift of SCs/STs should be task oriented and result minded. □

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Issues In Commercial Banking Reform

S. S. Tarapore

SINCE the nationalisation of the major banks in 1969, the commercial banking system has undergone a metamorphic change with a scorching pace of expansion. The number of commercial bank branches rose from a little less than 8,300 in June 1969 to a little over 60,500 in March 1992. Over the years, the pressures to garner resources for the Plan and the need to contain inflationary pressures resulted in an inexorable increase in reserve requirements to quite clearly unsustainable levels. As part of a conscious policy to reorient credit flows, priority sector allocations became a large segment of the lendable resources of banks With the wider geographical coverage, lines of control lengthened and were generally attenuated, while lending to risk prone areas increased significantly resulting in a deterioration in the quality of assets. As of March 31, 1992, the aggregate non-performing advances (i.e., those classified under Health Codes 4-8) of all public sector banks formed about 14.5 per cent of total bank credit. From the mid 1980's increasing concern has been expressed regarding the deterioration of the banking system and it was in this context that there has been a slowing down of the pace of branch expansion and the emphasis has been on consolidation of branch expansion and the emphasis has been on consolidation of the system.While the Indian banking industry has been going through a very difficult transition, hopefully its current problems have peaked and, with determined reforms in place, it would be reasonable to expect a continuing improvement in the years to come.

The year 1991-92 was in a sense a watershed as it signalled the emergence of a coherent programme of financial sector reform with the Narasimham Committee Report providing a comprehensive reference document for implementation of the reform programme. While the recommendations of the Narasimham Committee are well known, it would perhaps be useful to focus attention on some of the major issues which have implications for the commercial banks. There is a need for a cohesive strategy of finanicial sector reform as invariably there is a general scepticism that the reform process may not be durable. In this context it is necessary to have a broad understanding of the inter-linkages of various segments in the reform process.

Norms

The Narasimham Committee recommended the introduction of capital adequacy norms, prudential norms for income recognition, asset classification and provisioning for bad debts and all these have been introduced by the Reserve Bank of India with some modifications. Based on tentative estimates made by the Reserve Bank, it would appear that the provisioning requirements would be around Rs. 10,000 crore. There would also be a need for additional resources to meet capital adequacy requirements. As such, the total resources required by the nationalised banks and the State Bank group could be close to Rs. 14,000 crore; of this, banks may be able to provide about Rs. 4,000 crore by generating surplus funds over the next two years and about Rs. 10,000 crore would be required by the system as additional resources. To the extent that there is future growth of business, additional provisioning would be required.

Prima Facie the dimensions of the financing problem appear staggering; however, it may be useful to discuss some possible modalities which would reveal that although the problem is large it is not unmanageable. The overall financing could take various forms: there could be access to the capital market directly and also capital could be subscribed by bank employees and there could be cross holdings of equity between public sector units and public sector banks. The Government being the owner of the nationalised banks would also need to assess the burden which could devolve on the Government budget and in this context it would be relevant to consider the possibilities of obtaining resources from the multilateral agencies. The budgetary support had best be of a nature which does not result in an increase in monetisation. In fact the budgetary support could well have the stipulation that the banks in turn invest these funds in Government securities which are not eligible assets for the statutory liquidity ratio. As such, there would not be any cash outgo from the budget, other than interest payments and, of course, over the longer run, the amortisation of bonds.

The recapitalisation issue will necessarily have to be tackled on a bank by bank basis. Some banks will

be able to immediately access the capital market while others will be able to raise capital from the market after some assistance for an asset clean up. There would, however, be some banks which would not be able to approach the capital market in the foreseeable future and it is essentially for such banks that a modified asset reconstruction scheme would need to be worked out.

Fund

While the Narasimham Committee recommended the setting up of an Asset Reconstruction Fund (ARF) to take over bad and doubtful debts off the balance sheets of banks and financial institutions before implementing such a scheme it would be necessary to be clear about the sources of funding and the impact of such a scheme on the recovery climate. The Committee's recommendations on the setting up of Special Recovery Tribunals, when implemented, would enable speedy enforcement of banks' claims. It is recognised that the introduction of an ARF, combined with prudential requirements will, as a consequence, necessitate a large injection of funds If these capital requirements are to be met by the Government or the Reserve Bank, it may imply a large monetisation with obvious deleterious effects on the economy. Thus, the strategy for raising fresh capital by banks needs to be carefully worked out. An ARF poses the problems of moral hazard of lenders being distanced from the recovery process and this may not provide for the most efficient procedure for recovery; furthermore, such a fund could give rise to an erosion of accountability as a climate could get generated with expectations of a repetition of such waivers in the future. A limited ARF could, however, be considered for the smaller weak banks, which are unlikely to be able to access the capital market, provided the alternatives of merger are ruled out and the modalities of avoiding a repetition of the bad lending scenario are worked out. These banks could be provided the facility of the bad debts being taken over at face value but this should be strictly conditional on major adjustments being made by them in terms of drastic changes in their management sacrifices by the staff, control on the growth of assets and, above all, an increase in productivity and all this would heed to be clearly spelt out in a Memorandum of Understanding which would need to be monitored on an on-going basis. Issues remaining to be solved are the management of such ARFs and their ability to recover more efficiently than the banks. Once, such aspects are resolved, a limited approach to ARFs may be considered. The ARF route should be the option available to only those banks which cannot undertake the adjustments through recourse to other options. To ensure against some of the problems raised here, the ARF could be modified to ensure that the bank has an abiding interest in the recovery process. Under the modified ARF, the bank could be made responsible for recovery and could even have an incentive by being given a share of the recovery proceeds. The recovery proceeds could be used to at least partly provide for the redemption of the bonds. Considered expert advice on this subject is that cash injections under these circumstances would not be prudent. Cleaning up of the books of banks always carries the risk that, after the process banks would continue to take imprudent risks in the expectation of a bail out. In this context it is best to emphasise the need for a hard budget constraint to prevent the books of banks from being 'dirtied' again.

Impact on Banks of Reduced Reserve Requirements and an Active Government Securities Market :

In 1991-92, the reserve requirements had reached an unsustainable level of 63.5 per cent on an incremental basis which, if continued, would have had a serious effect on banks' viability. While the deleterious effects of very high reserve requirements are well understood, it is important to note that any precipitous reduction in such requirements would result in a total loss of monetary control with consequent inflationary implications, thereby jeopardising the reform process. The pace of reduction in reserve requirements in 1992-93 is not easily comprehended. This is best assessed with reference to the effective incremental reserve reference to the effective incremental reserve requirements (CRR and SLR taken together) which declined from 63 5 per cent in 1991-92 to 45 per cent in the first half of 1992-93 and further to less than 25 per cent in the second half of 1992-93.

The monetary policy in 1992-93 reflects a distinct tilt away from reserve reqirements and direct controls to developing open market operations in government securities as a major instrument of monetary control While there is a lot to be done in terms of developing a well functioning Government securities market, the direction of change is clearly towards interest rates on Government securities moving over time towards market rates. The activation of internal debt management policy and the development of a secondary market with sufficient depth to provide adequate liquidity and capital adequacy requirements would need banks to balance the advantage of high risk weighted credit *vis-a-vis* zero risk-weighted investment in Government securities. Over the next few years it could well emerge that banks will hold Government securities on their own volition rather than as captive investments under a reserve requirement prescription.

Interest Rate

In regard to the regulated interest rate structure, the basic thrust of the Narasimham Committee that real interset rate should be positive and that concessive interest rates should not be the vehicle for subvention has beer well accepted and a series of reform measures have been put in place: (a) considerable rationalisation has been effected in banks' lending rates with reduction in the number of concessive slabs and enhancement in some of the rates thereby reducing the element of subsidy; (b) the regulated deposit rate structure has been replaced by a single prescription setting a maximum rate for maturities of 46 days and above; (c) rates of interest of Government securities have been raised; and (d) for certain instruments such as Certificates of Deposit, Money Market Mutual Funds and Non-Resident (Non-Repatriable) Deposit Schemes the interest rates are freely determined by individual banks There is, however, a need for further rationalisation of interest rates and , in particular it is desirable to evolve a Reserve Bank Reference Rate of Interest which could then be the basis for determining the entire gamut of interest rates. Such a Reference Rate to be effective has to earn its place in the market and can develop as a pivotal rate in the system only over time. While these measures need to be persevered with, there is need for a cautious step-by-step approach rather than a rapid deregulation of all interest rates in the system. The experience in a number of countries has been that too rapid a deregulation of interest rates can be destabilising-something which the Indian banking system can ill-afford at this stage

Priority Lending

The question of priority sector credit has been under discussion for quite sometime. It is often erroneously argued that the problem of the commercial banks has been the large priority sector credit, which apart from involving high cost of servicing is afflicted by poor recovery. There is little evidence to show that recovery is any better in the case of larger loans than smaller loans. Small-scale industry and agriculture account for a significant part of national output and it would not be appropriate to starve these sectors of credit. While ensuring that the genuine credit requirements of the priority sector are fully met, a policy of a fixed proportion of total credit to a particular sector does not commend itself in the context of substantive reductions in the incremental reserve requirements. This can be explained by way of an illustration. When the incremental reserve requirements were 63.5 per cent, a 40 per cent priority sector allocation implied that 14.6 per cent of incremental deposits were available for the priority sector. If the effective incremental reserve requirements, are say, 25 per cent then even a 30 per cent priority sector allocation on an incremental basis would mean that 22.5 per cent of incremental deposists are available for the priority sector. Thus, with substantive reserve requirement changes it is necessary to review the incremental priority sector allocation. While there is a case for reviewing the targets for priority sector lending, it must be stressed that some directed credit is imperative in the development process.

Rural Credit

A sharper thrust on agricultural production that is sought to be achieved by various policy measures and institutional changes would concomitantly necessitate expansion diversification in the operations of agricultural credit delivery agencies with the objective of improving the quality of rural lendiding. A basic prerequisite for a successful financial sector reform is that the rural credit delivery system, which has developed serious problems in the recent period, is revamped and an enduring institutional structure put in place. While the question of imparting viability to the rural credit structure has engaged the attention of various Committees, a viable structure has yet to be evolved. It is imperative to devise a rural credit delivery system which will not require large subvention. In this context, better alignment of interest rates and mix of target and non-target lending would need to be given attention. There are also various other areas where the rural credit delivery system is quite clearly unsatisfactory and it is imperative that early measures are taken to bring about an enduring improvement.

Private Banks

The Narasimham Committee envisaged a larger role for private sector banks. While, at present, there is no legal ban on entry of new private sector banks, in practice no new private banks have been licensed. The time is now apposite to consider allowing a few new private sector banks so as to generate an element of competition. In this context, a number of issues need to be considered. In the case of new private sector banks it would be desirable to set a sufficiently high minimum start-up capital so as to ensure that the banks have inherent strength and the capital risk-assets ratio and prudential norms must be observed from the inception. The question of level-playing fields in areas such as rural branches and priority sector credit need to be addressed. Issues relating to limits on concentration of shareholding by individuals/groups and limits on voting power also need to be considered. The issue has also arisen as to whether financial companies should be allowed to set up banks and in such cases the question of cross-shareholdings and cross directorships need to be given attention Important aspects that need to be considered include the question of controlling groups lending money through the bank to projects owned or managed by them. Co-mingling of industrial groups and banks can lead to concentration of economic power which was one of the objects of

nationalisation of banking, to avoid. The various issues involved in the subject of opening up private banks need to be examined in depth and it is itself a subject which deserves a separate seminar.

Supervision

As the regulatory and supervisory roles have been intertwined the conceptual differences have often been blurred. The emphasis in the recent period has been to clearly delineate supervision from regulation. Regulation is codification of sound principles, norms and practices, while supervision is a means of ensuring banks' compliance with the regulations. While effective supervision can minimise the need for regulation, supervision cannot be substituted merely by more intensive regulation. Herein lies the role of an effective supervisory system In the process of reforms, the system would have to cope with new risks and therfore a more sophisticated supervisory system will be required. In fact, a strengthened supervisory system constitutes an essential prerequisite for the success of the reform process. As the volume, value and complexity of banking transactions increase, new linkages and institutions will be introduced, carrying greater and varied problems and, in this scenario, the role of prudential supervision becomes critical. The supervisory focus would need to be on the well-being and safety of the system as a whole emphasis should be less on mere routine scrutiny or verification of compliance with various guidelines and directives and greater emphasis will need to be placed on prudential internal control and risk assessment systems within banks. Supervision would need to be based on expeditious on-site inspections as well as off-site assessments. Supervisors should adequately evaluate credit quality and standards, operating procedures and other aspects of banking, which are essential to the sound operations of a bank without getting involved in the minutiae of banks operations. Strengthening of supervisory policies and practices should constitute an important part of the financial reform agenda. There supervisory policies and practices should be combined with a regulatory framework which rewards prudent operations and expeditiously detects and penalises imprudent practices. While strengthening the supervisory function, it is necessary to avoid excessive supervisory and regulatory burdens on the banks. It is important to note that supervision cannot be a substitute for prudent bank management. A strengthened supervisory system must go along with an equally improved system of banks' own internal controls. Supervisory burden will be minimal and yet most effective, if supervision is viewed as a back-up support system for the banking industry. Again, while a certain degree of regulation is desirable and necessary, there is a need for an on-going review of regulations to ensure that the burden on banks of the regulatory system is not excessive; moreover, there is a need for purposeful regulation rather than a mere carry over of a historical past which may no longer be relevant. In the ultimate analysis, the burden of excessive regulation or absence of relevant regulation is borne by the bank customers.

Assessment

While concluding, it would be useful to bring together these barod strands in the reform process as it affects commercial banks. With strong prudential norms in place, banks would be required to be transparent in their operations and would hopefully be required to assess risks more carefully than hitherto. This would, it is expected, result in a significant improvement in the quality of banks' assets. While the resource requirements of banks to meet the capital adequacy and provisioning for bad debts would be very large, it needs to be stressed that greater transparency by itself in no way results in a deterioration in the solvency of banks, if at all a sharper focus on these issuse would work towards an improvement in the banks' overall position. In other words the move towards implementing stricter prudential norms should in no way cause anxiety to depositors as to the safety of their deposites; on the contrary, all these measures would protect depositors' interests. With reduced reserve requirements, improved rates of returns on investments in Government securities and the proper reckoning of risks in credit, banks would protect depositors' interests. With reduced reserve requirements, imroved rates of returns on investments in Government securities and the proper reckoning of risks in credit, banks would on their own evolve an appropriate admixture of bank credit and investments. With the gradual reduction in interest rate prescriptions, banks would only look to the monetary authorities for signals and would have to take on a greater degree of responsibility in the interest rate determination process. Finally, in a *rapidly changing environment*, the supervision of commercial banks and their own internal control mechanisms will need to be strengthened. The regulatory burden needs to be so framed that it is eased for those banks which fully conform to the various parameters set out by the regulatory system. The regulatory burden needs to be so framed that it is eased for those banks which fully conform to the various parameters set out by the regulatory system. The overall pace of deregulation and its sequencing is also a matter of importance as too rapid and abrupt deregulation could result in an avoidable upheaval. In this context, the modulation of the pace of reform is sometimes as important as the reform itself □

(Courtesy : RBI)

Talking Point

We are introducing this column with a view to having a closer interaction with our readers. "Talking Point" will take up topical issues from time to time and try to explain the matter in simple terms. Readers can write back to clear any doubt. They are welcome to suggest current economic terms/ topics which may need elaboration.

Convertibility Of The Rupee

S. K. Roy

IN the 1992-93 Budget, the Finance Minister announced the introduction of a new system of exchange rate management under which a dual exchange rate regime came into existence. Under this system, all foreign exchange remittances whether earned through exports of goods and services, or remittances, were made convertible into rupees in the following manner: 40% of the foreign exchange remittance become convertible into rupees at the official exchange rate (determined by the Reserve Bank of India, which is statutorily authorised to maintain the external value of rupee), while the remaining 60% became convertible at a market determined rate. The foreign exchange surrendered at official exchange rate became available for meeing the foreign exchange requirements or essential imports such as petroleum, petrolum products, fertilisers, defence and life saving drugs. All other imports of capital goods, raw materals, intermediates and components (most of which were freed from import licensing requirements) became freely importable against foreign exchange purchaseable in the market at market determined rates. Foreign exchange required for other payments on private account including travel, debt service payments, dividend, royalties and other remittances was also to be obtained at the market rate. Because of demand supply imbalance in the availability of foreign exchange, the market rate of exchange was expected to carry a premium over the official rate of exchange. This system of exchange rate mechanism is variously known as partial convertibility, partial float, dual exchange rate system or liberalised exchange rate management system (LERMS for short).

Prior to 1992-93 Budget and following a series of trade policy changes in June, 1991 and devaluation of the rupee by about 20 per cent in July, 1991, a system was introduced under which exporters were allowed to retain foreign exchange worth 30 to 40 per cent of their export earnings in the form of transferable foreign exchange certificates. These certificates were known as EXIM Scrips. The EXIM Scrips carried a variable premium depending on their demand-supply gap. The demand for the scrips arose because these could be used to import specified but wide ranging items. Since EXIM Scrips carried a substantial premium in the market, these represented higher export profitability and, therefore, an incentive for the exporters.

However, with the introduction of the partial convertibility or dual exchange rate system, the system of EXIM Scrips became redundant and was, therefore, discontinued. Instead of a premium on EXIM Scrips, the exporters got the benefit of the premium on 60% of their earnings in the foreign exchange market. What was more, the incentive for earning foreign exchange now became available to remittances from the Indian workers abroad. Therefore, the system of partial convertibility was considered an improvement over the system of tradeable EXIM Scrips which itself was a major improvement over the pre-existing system of a single officially determined and overvalued exchange rate maintained through a strict foreign exchange control mechanism. An overvalued rupee depressed exports (because these were costlier to foreign importers), encouraged imports (because these were cheaper to domestic importer) and resulted in

an ever-widening balance of trade and balance of payments gap. The introduction of EXIM Scrips followed by devaluation of the rupee and subsequent adoption of partial convertibility were, therefore, steps towards correction of external imbalances.

The system of partial convertibility worked well as is evident from the remarkable stability of the external value of the rupee during its operation. However, the system of partial convertibility was not fully satisfactory mainly due to its bias against exports. In this dual arrangement, any one who earned $100 could convert it into Rs. 2,840/- assuming an offical rate of Rs. 26/- and market rate of Rs. 30/- per dollar. Had $100 been fully convertible at Rs. 30/- market rate this would have fetched him Rs. 3,000/-. This means that an exporter who earned $ 100 got Rs. 160/- less than what he would have got under full convertibility. This, therefore, represented a loss of about 5% for the exporter. As a matter of fact, the loss could be higher, since the potential market rate on full convertibility could be considered higher than Rs. 30/-

As a matter of fact, many critics of the system, especially the exporters, considered this loss as a tax on exports of goods and services. Therefore, at a time when exports were sluggish, this system could not have been continued for long.

In the 1993-94 Budget, the Government replaced the dual exchange rate regime by the unified exchange rate. Under this system, all exporters as well as other foreign exchange earners such as our workers aboard, will be allowed to convert 100% of their earnings at the market determined rate. All imports will henceforth have to be paid for at the market rate. This new system has been described as full convertibility or full float of the rupee. This is expected to give a major boost to exports and will also encourage foreign exchange flows into official channels.

Under the full convertibility regime, the exchage rate of rupee in terms of dollars will be determined purely on the basis of market forces of demand and supply, However, the Reserve Bank of India would have the discretion to intervene in the foreign exchange market by buying and selling dollars. The market determined rate of exchange will apply uniformly to all foreign exchange payments whether on Government or private account. All receipts, whether on current or capital account of the balance of payments, will be converted entirely at market rate of exchange. This does not mean, however, that regulations on foreign exchange transactions have been done away with. As earlier, exports proceeds are still required to be surrendered by exporters to authorised dealers in India. Foreign exchange remittance abroad would be similarly subject to the exchange control regulations, which have been substantially liberalised in recent periods. Unlike in the past, authorised dealer of foreign exchange have been given the authority to approve remittances for all authorised purposes, including sanction of exchange for travel abroad for various purposes.

Implications

What are the implications of the full convertibility of the rupee for the economy ? Much would depend on the value of the rupee in terms of dollar. In this connection, it needs to be understood that a shift from officially determined over valued domestic currency to devaluation, from devaluation to partial convertibility and partial convertibility to full convertibility generally involves a reduction in the value of the rupee. Therefore, some of the possible consequences of devaluation are explained below :

(i) When rupee devalues vis-a-vis dollar and the market rate of exchange settles down to say, Rs. 35 as compared to say, Rs. 32 now, the exports become more profitable for Indian exporters because every dollar they earn commands Rs. 35 instead of Rs. 32. As a matter of fact, the Indian exporter can now offer a discount in dollar terms of say 5% and still earn Rs. 33.25 against each unit of exports ($0.95 x 35 = Rs. 33.25). Thus a spurt in exports can be expected, provided, of course, exports are elastic enough to meet the increased demand. In other words, Indian exports can become more competitive in the international market and thereby provide a boost to the demand for exports.

(ii) On the same logic as (i) above, imports in rupee terms become expensive. That is, for every dollar worth of imports, the Indian importer has to pay Rs. 35 instead of Rs. 32. Thus the rupee cost of imports in totality including that on Government account goes up in quantum terms.

(iii) Higher rupee cost of imports of capital goods, raw materials and intermediates gets embodied in the domestic cost of production. This may result into a short term cost push inflation in the domestic economy. Another source of potential inflation in the domestic economy is the higher rupee cost of debt servicing and amortisation, if RBI buys foreign exchange in the market and thereby increases money supply in the economy. As a consequence of inflation exports may get costlier in rupee terms. Import intensive exports may get even more costlier due to higher cost of import content of exports. As a result, profitability of exports initially generated by the devaluation effect of full convertibility may get dissipated, at least partly,

(iv) With exports getting less competitive and, therefore, export earnings becoming sluggish, the

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Venture Capital Scenario In Indian Economy

Dr. Asim K. Mishra

'VENTURE capital' is the term applied to investments in 'new and untried enterprises' that are 'lacking a stable record of growth'. It is capital committed, as share-holdings, for the formation and setting up of firms specializing in new ideas, or new technologies with a large element of risk for the owners or shareholders, but with a potential for rapid growth.It may take various forms at the different stages of the project. Seed capital is provided for pre start up and the start up capital is provided for business launch. First and second round capital is used for full scale manufacturing and further business growth. The later stage finance includes expansion capital for accelerating growth, replacement capital for allowing sale of shares and bridge financing for planned exit. Besides these, turn arounds, buy-outs and buy-ins may also be other forms of venture capital financing. Venture capitalists specialise in one or more stages, but rarely all, due to varying degrees of risk involved. Venture capital is frequently in the form of equity or quasi-equity instruments A venture capital firm serves as an intermediary between investors looking for high returns for their money and entrepreneurs in search of needed capital for their start ups Venture capitalist joins the entrepreneur as a co-promoter in projects and shares the risks and rewards of the enterprise with the objective of long-term capital appreciation. Entrepreneurs give up a percentage of the ownership of their new company, often not more than fifty per cent, in exchange for acquiring capital. It is not solely an injection of funds into a new firm but an input of skills needed to set up the firm, design its marketing strategy, and organise and manage it. Venture capital carries both a high probability of complete loss for the investors and the potential for large returns, as high as 1000 to 5000 per cent. Most venture capitalists expect to earn a return, in five to ten years, at a rate that approximately doubles their original investment every 30 months or so. Profit is sought not from dividends, but from capital gains at the time of disinvestment. Once the venture has reached the stage of profitability the venture capitalist disinvests his own investments through available exit routes and redeploys the resources in new ventures. The sources of venture capital are companies whose principal purpose is to invest their pool of money in new, rapidly growing ventures, and wealthy private individuals who, either alone or together with others, invest in new businesses in the hope of earning large profits In addition, venture capital may be supplied by banks, pension funds, trusts, corporations, life insurance companies, usually through special pools that allocate a small percentage of their total investments for this purpose (usually less than 10 per cent).

Venture capital in modern times is of great practical value to every corporate enterprise. A highly developed venture capital institutional set-up dramatically reduces the time lag between a technological innovation and its commercial exploitation. It helps in developing new processes/products in a very conducive atmosphere, free from the dead weight of corporate bureaucracy, which helps in exploiting the full potential. It also acts as a cushion to support business borrowings, as bankers and investors will not lend money to a company with an inadequate margin of equity capital. The economy with well-developed venture capital network induces the entry of a large number of technocrats in industry, helps in stabilising industries and in creating a new set of trained technocrats to build and manage medium and large industries, resulting in faster industrial development.

Science and technology plays an important role in emergence of many sunrise industries. The adoption of state-of-art technology also affects the per capita income and quality of life of the nation. Self-reliance, which is our basic socio-economic objective, can only be achieved when indigenous energy and potentials are tapped. Excessive dependence on imports from abroad could involve rising cost and decreased self reliance. An aspect which needs to be stressed in the context of international march of technology is India's potential to play an active role in this on-going revolution.

In India, conscious efforts have been made by the Government in terms of policies, institutional mechanisms, manpower development etc., for development of a strong

scientific and technological infrastructure and capabilities at various stages.

For over 25 years, significant progress has been made in the field of space research,oil exploration, nuclear technology, telecommunication, electronics, information processing, computer peripherals, non-conventional sources of energy and bio-technology. Several R & D centres have been attached to various central ministries such as commerce, steel, mines, chemicals, transportation, energy, education etc. There are also many R & D units of industries. There has also been considerable expansion and diversification of Indian industries by the efforts of public term lending institutions. In addition, apex bodies, such as the Council of Scientific and Industrial Research (CSIR), Indian Council of Agricultural Research (ICAR). etc. have been created.

However, in spite of all such major strides, some of the scientists have been feeling that Indian industry has been making slow progress as compared to other developed countries. This is because in technology development, and more so in respect of the technology delivery system, India has had to contend with several serious and long-standing institutional lacunae. Indigenous technology development has been hampered because institutional mechanism for successful technology transfer (viz. test and evaluation assessement, technology escort services for commercialisation etc.) has been inadequate. The products of old and existing industries have become highly costly; they are not only priced out in international market due to their obsolete technology but have also become less attractive to domestic consumers. Hence, with the technological obsolescence ever increasing, the life of a particular product gets shortened What is latest technology today may not be so tomorrow as newer technologies and products are developed. This has led to a tremendous demand for newer technology and product.

Important Instrument

An important instrument for economic growth is the entrepreneur. Long-term economic development of India will take place through growth of private enterprises. Such enterprises have to be continuously rejuvenated by the entry of new entrepreneurs who bring in products based on better technology and management skill. This will provide the stimulus and competition that benefit the consumers and the economy. During the last five years, there has been an unprecedented surge in the development of high-technology in many industires. The Technology policy of Government of India laid stress on the development of domestic technology and efficient absorption and adaptation of imported technology, leading to domestic technological innovation, appropriate to national priorities and resources The emphasis is on developing internationally competitive technologies, reducing demand for energy, ensuring harmony with the environment, recycling waste materials and improving production through greater efficiency. India has the world's third largest reservoir of qualified scientists, doctors, engineers and manpower, with necessary infrastructure for indigenous R&D built over decade, ranking eleventh among nations in industrial production However, relative to our reserves of technological and professional talents, the rate of innovative, indigenous and commercial technology development is low. Such talents need to be utilised for encouraging the right type of S & T personnel for commercialisation of technologies. In such a situation the important input required in the transfer of technology from the laboratory or conception stage to the manufacturing commercial stage is the availability of flexible financial assistance mechanism. Several processes developed in laboratories are not commercialised for want of working capital, only because people are unwilling to take entrepreneurial risks. Projects based on untried and relatively new technologies entail high risks, as the returns are uncertain and the possibility of the technology being unproven cannot be accepted unquestioned.

It is the ambition of many talented people in India to set up their own ventures if they could get adequate reliable support. The way things stand today, a new entrepreneur with a good project idea, but no previous entrepreneurial track record, has limited sources of start up capital. He would not be in a position to offer any guarantee of success, as his idea would require a lot of research before it could be developed and commercially exploited. The idea may not turn out to be a technological breakthrough that it initially seemed and, in that case, all development costs incurred would naturally have to be written off. The quantum of funds that can be procured from friends and relatives is inadequate and public investors are wary about putting their money into start-ups. Such a response form investors adds to delay in project implementation and leads to cost overrun. The entrepreneur has then only public financial institutions and banks to support.

Some financial organisations in order to enlarge the technological entrepreneurial base, have been financiang a number of first-generation entrepreneur's promoted projects. These sources undertake project financing in the private sector through concessional term lending and, to a very limited extent, through equity financing. Through their multifarious schemes they meet a part

of venture capital requirements as part of development activity in the absence of any specialised venture capital fund. However, their concept of venture financing has been traditional, restricted to merely providing seed capital or gap filling support. The significant distinction between venture capital in modern sense and the new entrepreneur financing by DFIs and SFIs is in the method of structuring the financing, and picking up the project with the required team and substantial potential for market expansion. The primary purpose of these seed capital or risk capital schemes is to help technocrat entrepreneurs setting up manufacturing activities to meet their 'promoter's contribution'.

Though these institutions met the shortfall in the promoter's contribution, they could not fulfil the requirements of many entrepreneurs. Further these financial institutions were not in a position, nor was it their role, to provide management support which is often what the entrepreneurs need most. Hence, in this sense, they acted as financers and not as partners. Their conventional financing schemes were primarily designed to cater to the projects with minimum investment risk, maximum security of lending, and uniform return from an early stage. As a result, many promoters suffered, being unable to bring in those vital initial inputs of money A rupee resource constraint on the institutional and banking framework resulted in a more conservative adherence to Government policies for priority lending and submission of adequate security and collateral. Consequently, there were inevitable delays and problems for a new entrepreneur wishing to set up enterprises in hi-tech areas. Moreover, these institutions supported only that technology which, even if new in India, was already successfully tried abroad and whose commercial success was certain, or whose market potential was very clearly established, while 'technology development' remained largely confined to Government laboratories and/or Government sponsored research and academic institutions. The emphasis was on secured risks due to increasing resource crunch, and the beneficiaries were well established, well organised and larger companies. Inherent high risks with new technology projects, and processes were considered major weaknesses of a new venture in conventional financing schemes. The urgency to 'commercialise' was rerely realised and the Indian planners had no option but to continuously advise 'technology import'.

Frustrating Experience

Hence, the innovative research scientists, development engineers, inventors and others, who had developed processes themselves, or those who had based their projects on new techologies, had a frustrating experience in converting their development work into marketing product on a commercial scale. They had the good product ideas, but found it diffcult to tap the capital market successfully for want of track record, and/or were unable to address the capital market directly due to the size of issue being lower than the minmum cut-off, stipulated for listing on the stock exchange(s). They had no access to traditional financing sources as their projects were based on untried or relatively new technologies. Further, they had not the ability to meet the collaterals or security requirements of the institutions and banks, not the staying power in the long and arduous process of project implementation.

To attain a certain maturity in the economy, there has to be a balanced mix of large, medium and small enterprises, and a continuous process of technological updating by splitting-off new enterprise nuclei from the large and medium enterprises. In such a developed economy, Government policy can play a critical role in catalysing the formation of new enterprise nuclei and the financial intermediaries which avail of the latter, the market opportunities and capital funding. The one such financial intermediary that has attained a high degree of importance in India is the venture capital fund. Venture capital is conceived to be the appropriate vehicle for achieving these objectives. The need to fund such development-cum-commercial projects, to take scientific innovation form labs to life make R& D efforts commercialised, have led to the setting up of various agencies to provide venture capital, in the modern sense, mainly for the development of indigenous technologies. The development and sustenance of such new ventures provide an opportunity for venture capitalists to share the risk, the responsibility and the resultant rewards through venture capital investments. They share the reward later, but the risks right from the start, showing faith and commitment to such new ventures.

Noting the benefits which western economies have obtained from the development of a vibrant venture capital industry, India also attempted to stimulate the evolution of such an industry for itself. The technological revolution in recent times within our country has also provided a greater stimulus and a more conducive atmosphere for venture capital investors than ever before. A series of policy changes initiated during the last five years have paved the way for greater competition, flexibility and also helped the entry of more players in this financial sector. Liberalised industrial licensing policy, availability of raw materials and equipment through liberalised imports, development of exports encouraged with the setting up of export promotion zones, foreign

investments and easy technology collaborations, boom in consumer products market with its newly acquired purchasing power, offer a positive incentive for introduction of new products. The outlook for introduction of new products and services to be financed with venture capital is certainly bright.

According to Abid Hussain Comittee Report on "National Laboratories", currently there is an awareness among research institutions to commercialise technology, if necessary by providing turn key services. The entrepreneurial class has become more qualified and experienced in this line of activity. They have perceived the scope of new items rather than traditional ones. The national policy of encouraging competition in industry, environment and attitudes have all contributed in successfully implanting the concept of venture capital on Indian soil. The Government of India, as part of its long term fiscal policy, introduced Venture Capital Fund (VCF), on an experimental basis, to provide equity capital for pilot plants attempting commercial application of indigenous technology, and adaptation of previously imported technology to domestic conditions.

Until recently, venture capital funds existed in India more as intention than fact. However, with the announcement by the then Finance Minister in February 1988, venture capital activity has started getting recognition in our country. Suddenly the field has begun to witness a good deal of activity when Government of India, in order to reduce the problems faced by new entrepreneurs, formulated a set of basic guidelines in November 1988 to promote venture capital investment in new companies and provide some concessional treatment of capital gains. These guidelines aim to define the scope of activities of venture capital companies and provide certain fiscal incentives to them. Ever since a number of financial institutions and banks have dutifully formed units to enter this field along with the private sector. New entrants are pawing the ground to enter, while established players are revamping their strategies to retain their lead. Keeping in view the important role, which venture financing activity played in the economy of western countries, few state level institutions, selected by Government of India and the World Bank, have also launched venture capital funds. Recognition of this form of finance by the Government through the issue of guidelines and by the financial institutions/banks through the setting up of venture capital funds and subsidiaries, clearly indicates that these institutions foresee a technology revolution in near future and returns on venture capital lending are very profitable.

The initial impetus to provide venture capital was given by IFCI, which sponsored Risk Capital Foundation(RCF), which was later converted into a limited company styled Risk Capital and Technology Finance Corporation Ltd. (RCTC) from January, 1988. The institution provides venture capital through Venture Finance Scheme and Technology Finance and Development Scheme.

The Technology Development Fund (TDF) was set up by IDBI in 1986 for venture capital assistance in the form of equity, conditional loans and convertible debentures. In 1986, ICICI launched a venture capital scheme to encourage new technocrats. To undertake this task on a continuous basis, the corporation was set up with UTI and US Aid. The Technology Development and Information Company of India Ltd. (TDICI) in 1988. TDICI is currently managing two funds mobilised by UTI under the 'Venture Capital Unit Scheme' (VECAUS). VECAUS I fund of Rs. 20 crore which has been equally subscribed by ICICI and UTI, has been fully committed to small and medium enterprises. VECAUS II fund of Rs. 100 crore is presently being deployed. Only 30% of the VECAUS II resources has so far been called on by TDICI, the balance 70% were to be raised in two tranches during 1991-92 and 1992-93.

Among banks, SBI Capital Market, the subsidary of SBI, has designed venture capital fund to help finance projects involving high technology and a greater degree of risk. Canara bank launched the Can Bank Financial Services Ltd., which has set up Canbank Venture Capital Fund for building a technologically confident future through innovation. Grindlays bank launched 'India Investment Fund' which involve raising of funds from abroad from NRIs to be used for projects needing venture financing.

Gujarat Industrial Investment Corporation (GIIC) promoted 'Gujarat Venture Finance Ltd. (GVFL)', in July 1990. It is the first state level venture finance company to cater to the projects which will enhance the growth of the national economy. Andhra Pradesh Industrial Development Corporation (APIDC) set up APIDC-Venture Capital Ltd. (APIDC-VCL), to invest in innovative projects. The Department of Bio-technology, Government of India, has made a budget provision for providing seed capital assistance to new entrepreneurs in the field of biotechnology.

In the private sector, the Credit Capital Finance Corporation (CCFC) promoted Credit Capital Venture Fund India Ltd. (CCVF) to make investment in growth oriented companies based on high technology, especially where the regular financial support is unable to provide assistance. Besides, some private companies are making their presence felt.

The schemes offered by most of the these institutions focus on projects with technological risks and provide support to indigenous efforts in technology development. However, these institutions recognise the normal criterion of debt-equiry ratio and existence of security which in fact are not the criterion for evaluating venture capital projects. So, a lot of changes in attitude are called for.

Currently, some of the VCCs indulge in so called venture financing by investing in the equity of the companies whose projects qualify for other conventional means of financing, such as direct equity subscriptions and underwiting facilities from the existing institutional set up. If this practice continues unabated, the schemes of venture capital financing will certainly backfire, as venture capital is meant for those projects which, though viable and promising, do not have access to fund under the conventional schemes.

More Flexibility

In India, although VCCs generally seek board representation as part of their financial package, they are reluctant to involve outsiders in the business. Further, their hands-on approach seems to limit the scope of this innovative mode of financing. It would be better for VCCs to adopt commercial level of involvement achieved through 'eyes-on' but 'hands-off' approach. This is because, contrary to opinions of Indian VCCs, a venture capitalist running a portfolio of investments can rarely contribute more than strategic development advice to the management team. He can't devote time to teaching a technocrat manager the fundamentals of business management. Hence, those entrepreneurs are rarely assisted who lack the capability of running a business successfully in all the key areas. In the opinion of N. Vaghul, Chairman, ICICI, a balance should be struck in the mechanism between "hands-on" and "hands-off" approach in management, so as to provide an easy way out of disinvestment.ICICI and IDBI bear technological risks which draw a clear line of distinction between western VCFs and their Indian counterparts. IDBI assists only those projects whose technological base is still untested, unlike in the West where the risk borne by the venture capitalists is primarily financial. RCTF also assists industries to develop commercial R & D and prove a new technology rather than fund proven technology. TDICI also does not finance proven technology in the normal course and tries to develop technology through the commercialisation of R & D. In fact, this has limited the very scope of venture capital financing under current circumstances. It must be emphasised that venture investment need not necessarily be confined to hi-tech areas. Products employing locally available raw materials which presently have no economic value could offer significant opportunities.

The Mechanism for co-financing is another issue that merits discussion in this agenda. Venture capital firms in India have been operating in isolation, rerely recognising the need of co-financing so as to mutually share the risks and rewards. This may be due to : (i) the industries are of recent origin and a forum for exchange of infofrmation has not been established, and (ii) the projects so far assisted are basically of small size, which do not give rise to the need of co-financing. It is possible to look at relatively large-sized projects, requiring an investment of more than 5 crore, which could provide avenues for co-financing.

The concept of venture capital, as it is understood and as developed in the United States and other Western countries, is relatively unknown in India. All the schemes discussed above, though laudable are modest attempts at extending equity assistance to medium and large scale industries, and not really full-fledged venture capital funds in scope and content, as obtained in the U.S or U.K. With the exception of a few funds, most of the funds provide mainly debt rather than equity—a negation of the very concept of venture capital.

There is no doubt that venture capital funds in India have become popular, but in the light of the mammoth task to be performed by VCFs in India, their size appears to be small. The capital limits set for availing of finance in most of the schemes in India are also quite low. Certainly venture capial investments in India have to be stepped up with total requirements.

VCCs in India are extremely selective in making investments. India Investment Fund, for example, though a risk capital fund, has been cherry picking in spite of having good deal flow of projects. According to an estimate, they have come across 120 investment opportunities and only one of every six of these has been sanctioned. They basically look for new equity issues coming out in the capital market. The traditional conservatism of these organisations makes their approach highly selective. □

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WHO IS SENSIBLE AND WISE-A FAMILY WITH A SMALL SIZE

The Protective Discrimination Under The Constitution

Dr. M C. Paul

Constitutional Provisions for the Scheduled Castes and the Scheduled Tribes : By Giridhar Gomango; Himalaya Publishing House, Bombay 1992; Pages 260; Price : Rs. 175.

ALL persons are said to be born equal. In India, however, some people seem to be more equal than others. Since long various efforts were made to integrate the weaker community of Scheduled Castes and Scheduled Tribes into an organic whole. Indian social history is full of evidences that many of great soul fought time and again against the discordant distinctions, and especially the horrors of social inequality. Our great seers and sages also struggled to bring home the point that there is a need for greater social cohesion and unity among all sections of Indian Society.

Since the dawn of Independence, Indian society had been undergoing great social upheavals and structural changes. From foreign rule self-rule was effected. Cultural, regional and linguistic boundaries within the nation were redefined. Shri Giridhar Gomango's book entitled "Constitutional Provisons for the Scheduled Castes and the Scheduled Tribes" highlighted many legislative and administrative provisions for the weaker sections. We know that the pseamble to the Constitution of India embodied the resolve of the people of India to secure for all citizens: "Justice, social, economic and political; Liberty of thought, expression, belief, faith and worship; equality of Status and of opportunity; to promote among them all fraternity assuring the dignity of the individual and unity and integrity of the nation."

One of the seven broad categories of Fundamental Rights guaranteed in the Constitution is the right to equality including equality before law, prohibition of discrimination on grounds of religion, race, caste, sex or place of birth, and equality of Opportunity in matters of employment. However, it is declared in the Directive Principles of State Policy that "The State shall promote with special care the educational and economic interests of the weaker sections of the poeple, and, in particular, of the Scheduled Castes and the Scheduled Tribes; and shall protect them from social injustice and all forms of exploitation." (Article 46). Further, Article 15(4) of the Constitution provides that "Nothing in Article 15 or Article 29 (2) ......shall prevent the State from making any special provisions for the advancement of any socially and educationally backward classes of citizens or for the Schedaled Castes and the Scheduled Tribes." Also, Article 16(4) of the Constitution permits the State to make "any provision for the reservation of appointments or posts in favour of any backward class of citizens which, in the opinion of the State, is not adequately represented in the services under the State." Thus, the Constitution prescribes certain protection and safeguards for the Scheduled Castes, the Scheduled Tribes and Other Backward Classes with the objective of promoting their eductional and economic interests and of removing certain social disabilities that they have been traditionally subjected to.

Thus a novel experiment of nation making based on the democratic principles of equality and opportunity was being undertaken in every sphere of life. By and large, however, the basic Indian social reality still remains unchanged. It is the reality of socio-political pluralism, caste discrimination, religious and cultural indentities. In this pluralism various social groups are graded into "people with more power" and "people with less power". Thus Indian society constitutes of relatively free "Upper castes groups" who are rich and powerful, and therefore, at the pinnacle of decision-making process, and the rest who are poor and also are without access to power. This resulted in their exclusion from participation in the decision-making process.

It is a common knowledge in India that special safeguards and privileges are granted to the people belonging to the scheduled castes and the scheduled tribes. What was not so evident was that good laws do not by themselves guarantee that they will

be interpreted objectively and that they will be implemented justly. It was also not clear that, while all will be equal before the law but the fruits of equality will be shared unequally. That for sosme people rights will become honoured privileges, while others may have to be satisfied with whatever they have. Justice, equality of law and opportunity, and cultural pluralism stood the chance of being sacrificed at the altar of the dominant sections who occupied the centre. There is a considerable difference in the Constitution in the treatment of the Scheduled Castes and the Scheduled Tribes even though the SCs aand the STs are defined in Article 366(24-25).

The term"protective discrimination" refers usually to a wide variety of special provisions designed to provide preferential treatment or grant concessions to the weaker sections including the scheduled castes, the scheduled tribes and the other backward classes, who have been historically undergoing several disadvantages in the society. The policies and programmes of the Central and the State Governments for the benefit of these people cover several areas, and they vary from State to State as well as for the three broad categories of the weaker sections. However, since Independence, the scope of protective discrimination under various Articles (15, 16, 29, 38, 46, 330, 332, 334, 335) has been considerably expanded with a view to accelerating the process of building an egalitarian social order. The fundamental logic of this policy of protective discrimination was to give equality of opportunity and secularism. the latter two would prove to be meaningless if a very large section of the society continued to remain poor and were deprived of opportunities to secure socio-political and administrative positions. The Constitution makers felt the need for special safeguards and reservations, though there were no two opinions about the fact that the protective discrimination is not an ideal course. That's why H.V.Kamath, a member of the Constituent Assembly, said that "Members and even friends outside may dispute the wisdom of this course, but practical politics and statesmanship is guided by expediency and the exigencies of the prevailing situation. The situation today dictates to us this course".

It is an irony that more than forty years have elapsed, the upper strata of our society still strongly resent the provision of protective discrimination on the ground of equality, merit and secularism. Thus the policy and programmes of "protective discrimination" during the last four decades have raised many questions ranging from the justification of the policy and evaluation of the variety of programmes to their implications at present as well as in future. The questions concerning the justification of the policy and the implications of the safeguards and programmes are related to the very philosohpical basis, historical context and national goals, the question relating to evaluation refer to adequacy and suitability of these programmes, their short-term and long-term desired as well as unanticipated outcomes of the provisions in terms of the nature and extent of benefits that accrue to different subsections of the weaker sections, and the impending as well as facilitating factors for complete realisation of the goals of the policy. By and large, these questions have several theoretical, methodological, and empirical dimensions as well as economic, political, social and psycholgical implications.

As mentioned earlier, in Indian society and polity, theoretically all are equal before the law but the fruits of equality are shared unequally. that is why notwithstanding policies, programmes, protective measures, etc. for the weaker sections, the results have not been commensurate with the magnitude of the problems. Even today atrocities on the weaker sections are continuing in different parts of the country. Exploitation and violence have become a part of the life. The testimony of this can be seen from the various reports submitted to the Central and State governments at different points of time. For instance, the Commissioner in his twenty-sixth Report (1978-79) observed that "the nation can legitimately claim an all round growth. But the same cannot be said of the weaker sections like the Scheduled Castes and the Scheduled Tribes. We have not succeeded in getting for them freedom from poverty, inequality and injustice. In spite of Constitutional guarantees, protective legislations and numerous developmental programmes, the vast numbers of these communities still continue to be impoverished. The Scheduled Castes are not owners of productive resources and continue to suffer from social ostracism. The Scheduled Tribes living in relatively under developed parts of the country are slowly losing control of productive resources as a result of our unimaginative laws and development schemes". In the introductory chapter-I of his book the author rightly quoted a few stanzas like this to highlight the plight of the weaker sections. Of course, the book is remarkable for its comprehensive treatment of the Constitutional provisions for the Scheduled Castes, the Scheduled Tribes, the other backward classes, and the minorities like Anglo-Indian Community. He also critically appraised important special safeguards for these sections of Indian society. The part-III of his book contains an updated information on various legal provisions and

developmental measures. These will be of immense value to the researchers, policy makers, and the people who are engaged in the development of weaker sections. This reference volume is an outcome of Shri Gomango's realisation of a need for a book of this kind when he was associated in different capacities with several official and non-official functionaries engaged in the task of implementing the Constitutional provisions for the benefit of the weaker sections in different parts of th country.

The policy of "protective discrimination" as a measure of social upliftment and transformation of the weaker sections has been adopted by the Government of India "deliberately so that the foundations of a strong egalitarian and dynamic social order could be laid. The talents of these people which hitherto were deprived of equality of opportunity and whose talents remained untapped and undeveloped could be utilised. It was, thus, hoped that the deliberate protective discrimination policy of providing better education, economic, political, and occupational facilities would motivate them for upward socio-economic mobility and bring them into the national mainstream. However, this policy was thought of as a short-term policy of "wean away" the weaker sections who were relatively in rigid, disadvantaged and insecure social order. It was assumed that through this policy more and more SC/ST members could achieve higher status and position in the society. And they would no longer require reservations, and they in turn, would motivate their own SC/ST brethren to rise socially. In other words, the idea was to make the better placed SC/ST members act as catalytic agents and provide leadership to the lowly placed SC/ST brothers and sisters.

But, by and large, this hope was belied due to the fact that this policy has not significantly succeeded in breaking the prevalent "inequalities" within and without the SC/ST communities. It has succeeded in creating a class of privileged and better-off sections among the SC/ST Communities who are appropriating all the protective discriminational benefits generation after generation. In other words, the policy of protective discrimination has not percolated down the poorer sections of these communities. Now the time has come to review this policy and make it more dynamic, progressive and open so that the poorer sections of the weaker communities are encouraged to get rid of disabilities and develop themselves according to their capacity and genius. It is only then this policy can bring about the desired result of social transformation and integration among all the SC/ST communities equitably. The poorest of the weaker sections should not feel that the provisions of protective discrimination are the mirage of constitutional equality for them. Shri Gomango's latest publication will definitely fill in the gap which has been in existance for long to familiarise ourselves with the various administrative, legislative and constitutional safeguards available for the weaker sections. He has judiciously included the relevant updated provisions and safeguards in one useful book like this so that the reality of discrimination and oppression may be reversed and not clouded. The author deserves kudos from the readers. □

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current liberalised import policy may exert unhealthy pressure on the overall foreign exchange reserves. This may destablise the external value of the rupee further and thus a chain reaction may start putting continuous downward pressure on the value of rupee.

It needs to be noticed that all the potential adverse consequences of full convertibility depicted above rest on one factor, namely, inflation. Therefore, the success of full convertibility in achieving its objective of generating export competitiveness, export growth and balance of payments stability would depend on how best the monster of inflation could be kept in check in the short run. In the long run, with infusion of foreign investment and technology, increased domestic and global competition and consequent improvement in productivity, the economy would move on to a higher growth path. As a consequence of fiscal consolidation, rate of inflation would be moderate, exports would grow in tandem with imports and balance of payments deficit would narrow down to manageable limits. In this kind of a plausible scenario, the floating rupee should reflect its true value and stabilise within a narrow range. □

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BOOK REVIEW

ELECTORAL REFORMS IN INDIA : Published by Rajaji International Institute of Public Affairs and Administration, Hyderabad; PP 70; Price : Rs. 65.

The Rajaji International Institute in Hyderabad has been rendering pioneering service by publishing valuable monographs on important contemporary issues. These publications are based on deliberations at several workshops organised by the Institute. The workshops are designed to disseminate wide-ranging cross-currents of ideas on public issues. The object is to expand the frontiers of debate on contemporary subjects of interest.

The Institute had thus organised a series of debates on Electoral Reforms. The discussions were held at four centres—Madras, Delhi, Bombay, and Hyderabad. A number of eminent people including representatives of political parties, M.P.'s, administrators, jurists, academics, journalists and industrialists took part in the deliberations. The list of participants at the seminars, in fact, reads virtually like a "who's who" in the nation's public affairs. It was also significant that members of the Union Government's Experts Committee on Electoral Reforms attended the final round of discussions. This lent an important dimension to the exchange of ideas on the subject.

This illuminating study is made up of five chapters. The first four comprise the background papers presented at the seminars. A very informative paper by Mr. Krishan Kant, and a prominent public figure for long, now Governor of Andhra Pradesh, is among those circulated.

The workshop's statement summarising the observations and the suggestions made at the seminars forms the concluding chapter. The book thus provides the reader a thoroughly critical and analytical overview of the tangled process of the "battle of the ballots" in ours, the world's largest parliamentary democracy

The Institute's Director Dr. G.R.S. Rao presents an overall view of the election process and makes out a well-reasoned case for the long overdue electoral reforms. This essay, circulatd at the final seminar describes the various stages of the general elections in the backdrop of their mind-boggling array of figures involved in the operations. He narrates the bewildering problems of the Indian polyglot society characterised by the cultural, linguistic and religious diversities compounded by the hurdles of illiteracy in our vibrant democrary.

Dr. Rao's background paper like the other in this useful publication clearly depict the pitfalls, the malpractices and the obvious deficiencies in the present poll system devised forty years ago. The arguments for electoral reform have indeed been gaining momentum and increasing force after each round of general elections. Because, as every discerning citizen would appreciate, each of these rounds has thrown up a host of fresh problems baffling and confounding the Election Commission as well as the poll pundits !

Much worse is the alarming rise in what has been described as the criminalisation of electioneering and the large scale violence that much too often breaks out during the polls. As the publication vividly points out, the escalating cost, the many falsified returns of election expenses, the money-power and the muscle-power in poll campaigns, booth-capturing, bogus voting and rigging are among the several ugly manifestations of the abuses besetting the present poll system.

The proposals for large-scale election reforms proposed in this monograph are therefore timely and are to be welcomed. All political parties also are, by and large, agreed on the imperative need for thorough-going changes in the Representation of the Peoples Act. Amendments to the law now in the statute book on which interaction of the parties was sought by the then Law Minister, the late Dinesh Goswamy had been broadly endorsed by the parties. What is called for now is purposeful action in this direction in time before the next genaral elections.

The Rajaji International Institute of Public Affairs and Administration has taken a commendable initiative in bringing out this valuable monograph.

M. K. Dharma Raja

URBAN DEVELOPMENT AND URBAN RESEARCH IN INDIA : By Amitabh Kundu; Khama Publishers ; New Delhi; Pages 162; Rs. 160/-

This book is a collection of five long essays, narating and analysing the problems and priorities in urban planning and urban research in India. The essays may stand independently as well. But the author attempts to purposely interrelate them and make them a smooth reading.

The first essay sets the stage for discussion depicting the pattern of urbanisation till the recent years The distinctive growth patterns in the seventies and eighties have been analysed and hypothesis built up as supports The second chapter attempts to study the rural-urban linkages in 291 districts falling in 10 agroclimatic zones, and emphasises the spillover effect of secondary and tertiary activities of large cities. The third chapter deals with the Urban housing problems, the ageacies responsible for Urban housing activities, the functioning of the financial institutions and the status of the poor in relation to these. The fourth chapter deals with present water supply and sanitation facilities in the urbanhubs, their organisational, functioning and maintenance aspects and their expenditure. Emphasis is laid on their sensitiviness to the problems of the poor. The fifth chapter is informative as it discusses about the different research studies and their results relating to Urban Development, undertaken during the recent years. A large list of more than 350 articles/papers/books on the subject has also been appended.

This book gives a comprehensive insight to the urban planning and development exercises presently being undertaken in India. These issues serve as dependable platform with a developmental perspective in view. However, urbanisation process does not become exhaustive without details of urban poverty and slums. Among facilities to be provided—health, education, transport, electricity, recreation are important. And the social security and social life situations cannot be disregarded. Though all these may not be within the scope of what Kundu wants to deliver, urban policies and priorities have to be moulded to accomodate these issues □

S. Dhar

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their perceptions/biases not only through interviews but also through drawing of maps.

Concluding Remarks

Traditional developmental paradigm advocates a 'blueprint' approach to developmental issues A 'blueprint' envisages a general model of development whose parameters are fixed irrespective of variations in space, time, gender, class, age etc. The underlying assumption is that such variations are minimal and can be ignored. Or alternatively, such variations can be taken care of by adopting special programmes/ schemes for selected clientele groups like the women or the aged as a part of 'blueprint' model. Such an approach helps in generalizing issues and makes framing of developmental programmes less complicated. Implementation of such programmes is also more convenient on account of lesser variations involved. However, as experience shows the expected outcome of a 'blueprint' model and the divergence between the two can be phenomenal against the set objectives of development. This is because development problems are localised, complex, and multi-dimensional in nature.

Experiences of development workers at the grassroot level indicate that differences arising out of gender and other factors like space, time, age etc. can be significant enough to make or mar the appropriateness of development programmes. These factors and their influence can be revealed only through participation of the clienteles of development at the grassroot level. It is time the 'blueprint' model of rural development is challenged and overthrown in favour of local variants through active participation of clientele groups so as to adopt a more realistic approach to rural issues. □

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Changes In Exim Policy : 1992-97

Move To Promote Growth In Agri-Exports

Mahesh Prasad

THE Export and Import Policy 1992-97, which was expected to give a big stimulus to the country's exports, has not succeeded to the desired extent. The current year, 1992-93 is likely to end with an export growth of 3.5 to 4 per cent, which is rather poor, although the disturbances in Bombay following the Ayodhya episode and the Bombay bomb blasts have contributed to the disappointing performance on the export front. Therefore, taking note of the demands of trade and industry and its own experience in implementing the policy for one year, the Government has announced changes in the policy to further liberalise it and to make it more supportive of the country's export effort. The revised policy seeks to give a big push to the growth in exports in agriculture and allied sectors, promote trade in services and involve the State Government in export effort

The move to boost export in the agriculture and allied sectors is in line with the policy announced in the Union Budget of 1993-94. The Commerce Minister, Mr. Pranab Mukherjee, in his statement on the changes in the policy made in Parliament, said growth in export in agriculture and allied sectors "is essential if we want to step up investment in the agricultural sector, raise the income generation capacity in the rural areas and have sustainable growth with equity in our exports." The Government policy takes note of the perceptible decline in investment in agriculture, both in public and private sectors in the eighties. Gross investment in real terms (at 1980-81 prices) has declined from Rs. 4,636 crore in 1980-81 to Rs. 4,357 crore in 1990-91, according to the pre-Budget Economic Survey. There was a perceptible decline in public sector investment, whereas the private sector investment remained more or less stagnant. Further, recent studies have shown that the scope for the export of food processing items is immense with India having a share of a mere 0.4 per cent in the $ 25 billion world trade in fruits and vegetables.

The revised policy attached high priority to the establishment of Export Oriented Units (EOUs) in the agriculture and allied sectors The Government has, therefore, decided that units engaged in agriculture, aquaculture, animal husbandry, floriculture, horticulture, pisciculture, poultry and sericulture, can avail of the benefits of duty free imports under the EOU/EPZ scheme even if they export 50 per cent of their production. They can sell the remaining 50 per cent in the domestic market as against the limit of 25 per cent permitted for non-agricultural sector. The definition of "capital goods" under the policy has also been widened to cover capital goods used in agriculture and allied activities to enable their import at concessional rate of duty. Further, certain inputs and materials required by the agricultural sector, such as 'prawn, shrimp and poultry feed' 'edible wax for waxing fresh fruits and vegetables', grapeguard paper, 'dipping oil' for treatment of grapes, 'wheat gluten' and fishmeal in powdered form are being removed from the Negative List of Import so that they are freely importable.

Moreover, there are a large number of items relating to the farm sector among the 144 items removed from the Negative List of Exports to achieve a rapid growth in the country's exports. These items include coconut and copra with some exceptions, expeller cakes (excluding those of cotton seed) and sunflower seeds from Licensable List, cotton seed expeller cakes, safflower seed (Kardi seed), wheat straw (hay) and natural rubber of RMA IV from Ceiling List and all seeds of trees, vegetable seeds other than onion

seed, basmati rice, black pepper, non-basmati rice, wheat and wheat products from Conditional List. A large number of other farm items, including coarse cereals, gaurgum and HPS groundnuts have also been removed from the conditional list.

Other Items

Besides the items belonging to the farm sector, other items excluded from the Negative List include chloroquine phosphate, napthalene, pig iron, rock phosphate, donkeys, ferrous scrap, radium, iridium, selenium, rare earth metals, chromium, germanium, gallium, thallum, radium ores and concentrated, vanadium ores and concentrates, tungsten, raw magnesite, silk tops and silk waste, mules from licensable list; calcined magnesite with silica content of 7.5 per cent and above handicraft and culled live sheep and goat (adult) from ceiling list; and aircraft spares and accessories, carbonised lignite briquettes, iron ore concentrates and pellets, containing 40 per cent or less of iron produced by Kudremukh iron ore company, arms and ammunition, viz., muzzle loading weapons and breach loading or bolt action weapons, coir and coir products, processed mica, including mica blocks and silvered mica capacitor plates from the conditional list. The rationale for removal of items from the negative list has been that items, which are freely importable should also be freely exportable.

As for the services sector, a new scheme, called the "Export Promotion Capital Goods (EPCG) for the Services Sector" has been introduced in the policy to tap the vast potential of the sector for exports. The scheme is designed to exploit the large size of highly skilled human resource, with which the country is endowed with and which gives it an advantage in the services sector as trade in services is becoming an important segment of world trade. Under the scheme capital equipment at a concessional rate of duty of 15 per cent may be imported by those who render professional services, such as architects, artists, chartered accountants, consultants, doctors, economists, engineers, journalists, lawyers and scientists. The scheme is also open to other services, such as hotels and restaurants, travel agents, tour operators and diagnostic centres. The export obligation to be achieved by them will be in the form of foreign exchange earned, regardless of whether the services are rendered in India or abroad. As for the existing EPCG scheme the only window for imports at the concessional rate of duty of 15 per cent is being kept open in view of the general lowering of customs tariff.

Another important feature of the revised policy is the involvement of the State Governments in the export effort. The Commerce Minister announced that a Centrally Sponsored Scheme for assisting the States in the establishment of industrial parks, with high standard of infrastructural facilities was being formulated. Although no further details of the scheme have been disclosed, it is hoped that since the Commerce Minister is also the Deputy Chairman of the Planning Commission, the scheme would be formulated soon and announced.

Positive Reponse

Several minor changes in the policy have been brought about following the pleas of the trade and industry. Thus the criterion for the recognition of export houses, trading houses and star trading house would henceforth be based on "FOB value of physical exports" as against Net Foreign Exchange Earning at present as it had been pointed out that there had been difficulties in the computation of NFE. Through another amendment indigenous inputs are excluded from computation of value addition for the purposes of determining the export obligation to be achieved by units in the EOU and EPZ scheme. This is with a view to encouraging the use indigenous inputs by such units. Further, the number of goods for which input-output norms have been standardised and published has increased substantially to 2212 from 1517, facilitating quick disposal of application for duty free licences.

The revised policy has been welcomed by trade and industry as most of their demands have been accepted by the Government. Among the changes which found favour are measures to boost export in agriculture and services sectors, the Centrally Sponsored Schemes to establish industrial parks in States and recognition of export and star trading houses on the basis of FOB value of exports. While favouring curtailment of the Negative List of Export, trade and industry have called for its total elimination as also that for import. However, although the revised policy shows the Government's anxiety to boost export, it is worthwhile examining whether the policy as revised would promote enough exports in value terms to reduce the trade deficit in short term and to turn it into a surplus in the medium term.

Prompted by the universal move towards liberalisation of international trade, the revised policy no doubt marks a departure from the policy hitherto being pursued for promoting exports of value added goods and discouraging exports of primary goods. This is evident from the nature of goods eliminated from the Negative List. Items eliminated from the list are mostly primary commodities. Even items like iron ore, raw silk, wheat, basmati rice and coarse cereals have not been spared. If in the interest of free trade, it was considered necessary to lift the restriction on the exports of the items

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Reform Process Goes Further

S. Venkitachalam

TAKING the reform process further, the Central Government has pruned the 'negative' export list of the 1992-97 export-import policy, given a big thrust to export of agriculture and allied products, substantially modified the Export Promotion Capital Goods scheme (EPCG) and extended it to the service sector. As many as 144 items have been taken off the negative export list, several of which pertain to agriculture and related areas.

In the revised policy, announced by the Commerce Minister, Mr Pranab Mukherjee on March 31, 1993 recognition of export, trading and star trading houses will be based on the Freight on Board (FOB) value of 'physical' exports, instead of net foreign exchange (NFE) as earlier.

Agriculture and allied sectors will get a boost by allowing 100 per cent export-oriented units in these activities to sell half their total production in the Domestic Tariff Area (DTA) as against only 25 per cent allowed for other Export Oriented Units (EOUs).

The other changes unfolded by the Commerce Minister aim at excluding usage of indigenous raw materials in computing value addition norms for 100 per cent EOUs, enlarging the coverage of input-output norms for over 2200 items from 1517 under the advance licensing scheme.

Exporters, who did not have time to take advantage of the unified exchange rate introduced from March 1, this year, have also been rewarded. An updated edition of the Handbook of Procedures (1992-97) has been released and procedures will be made more transparent. In respect of items taken off the negative list, the Government will issue a public notice fixing the minimum price and impose such other conditions as it may deem fit.

The 50 per cent of DTA sale in value terms will apply to EOUs in agriculture, acquaculture, animal husbandry, floriculture, pisciculture and sericulture. The sale will be subject to fulfilment of minimum value addition and export obligation.

Under the amended EPCG scheme new as well as second hand capital goods could be imported at a concessional duty of 15 per cent against an export obligation equal to four times the Carriage, Insurance Freight (CIF) value of such goods to be fulfilled in five years. The 25 per cent customs duty on import of new and second-hand capital goods has been withdrawn.

Trade and industry had been stressing that the advantages of EPCG scheme had been eroded by lowering of the customs duty on capital goods. Alternatives and detailed guidelines will be announced soon for capital-intensive projeets or those involving sophisticated technology to allow for flexibility. The requirements on provision of bank guarantee by the importer have been liberalised and procedures simplified to reduce the cost of furnishing the guarantee.

For the service sector, capital equipment can now be imported at a concessional rate of 15 per cent by professionals such as architects, artists, chartered accountants, counsultants, doctors, economists, engineers, scientists and lawyers. The concessional rate will also apply to hospitals and hotels, travel agents, tour operators and diagonistic centres. The export obligation will be in foreign exchange earned by them, regardless of whether the services are rendered in India or abroad.

The definition of 'capital' goods in the policy has been widened to cover capital goods used by agriculture and allied activities so that units in these sectors could import their needs under the EPCG scheme.

The Government has also allowed free import of certain inputs and materials required by agricultural sector by removing the items from the negative list. These include prawn, shrimp and poultry seed, edible wax for waxing fresh fruits and vegetables, grape guard paper, dipping oil for treatment of grapes, wheat gluten, fish meal in powdered form and grand parent poultry stock.

Use of indigenous raw materials is expected to get a boost, now that the formula for calculating value addition by EOUs/EPZs will exclude such materials. The new formula also provides a special dispensation for capital intensive units.

In the revised policy, input-output norms have been prescribed for 700 more items. While the value based advance licence scheme has

been continued, it has been tightened. A licence holder will have to achieve both quantity and FOB value of exports specified in the licence in order to prevent misuse of the scheme. Monitoring of export obligation by duty-free licence holders will also be strengthened.

A cash discount equal to 8 per-cent of unused licences will be given to exporters who, under duty-free licence scheme realised their export proceeds, but failed to complete imports before March 1, 1993 when the rupee became fully convertible on the trade account.

Significant

By far the significant liberalisation is in respect of EOUs in agriculture and allied sectors. Going by the Commerce Minister's statement, exports from these sectors are likely to be in neighbourhood of four to five billion dollars at the end of the Eighth Plan against the projected total exports of around 35 billion dollars. The move is also intended to attract new investment in the rural sector and to improve the income level of farmers.

The Commerce Minister has made it abundantly clear that Indian agriculture will not be hit by the Dunkel proposals. The subsidy given to this sector to promote exports is far below the 10 per cent level prescribed in the draft proposals. He however expressed fear that in the event of an agreement between EEC and the US on agricultural subsidy, India's interests would be affected.

The reason for allowing a 50 per cent DTA sale for EOUs in agriculture and allied sectors is to enable them to build a strong domestic base and thereby emerge competitive in the international market. Moreover, most agricultural items are perishable in nature and their exports cannot be sustained on a long-term basis.

It, however, remains to be seen if this sale will be allowed duty-free, affording further relief to the units. Under the existing rules governing EOUs, such sale will attract customs and excise duties. This is one main reason why not many EOUs have been able to take advantage of the facility so far.

The change in the criterion for recognition of export, trading and star trading houses will imply that they have to show a higher FOB realisation than earlier to qualify for their status.

An export house is to achieve an annual average FOB value of physical exports of Rs. 10 crore in the preceding three licensing years as against Rs. 6 crore earlier. Similarly, a trading house has to show an average FOB value of physical export of Rs. 40 crore in the preceding three licensing years as against Rs. 30 crore previously. Such an increase in export can be achieved by houses whose import is rather high as computation on NFE basis stands withdrawn. NFE means export minus import. □

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concerned perhaps some other means of discouraging exports of primary products and encouraging those of the value-added goods should have been found, possibly through levy of tariff on the former. As it is, free export of food grain may by reducing supplies in the domestic market fan inflationary pressures.

Export of farm produce through EOUs would be welcome if it leads to the promotion of processed food industry and the export of its produce with enough value addition to bring in larger inflow of foreign exchange. On the other hand if it leads merely to the export of primary commodities, or of goods with low value addition, it is not going to help much. The need of the hour is the inflow of latest technology to promote a quantum jump in exports of high value items. The sale of 50 per cent goods of EOUs in agriculture and allied fields in the domestic tariff area (DTA) makes it somewhat attractive for the foreign investor to enter the field of food processing in this country. Whether this would help tie-ups and export in food processing remains to be seen.

Exports of farm produce, both primary and in value-added forms would no doubt spur investment in the agricultural sector, which has been falling in recent years. It would also increase incomes in rural areas, which could act as a catalyst to industrial growth by boosting demand for manufactured goods. It may also promote export of primary goods, mainly food grain, which may result in increase in prices as a result of reduced supply in the domestic market in the short run if export takes place in large quantities. Export in smaller quantities may only check the declining trend in agricultural prices. However, exports of primary commodities and low value-added items may not help much in narrowing the mounting trade gap. The concessions to the services sector may promote consultancy exports to some extent, but may not lead to a large inflow of foreign exchange. So long as recessionary conditions persist in the developed countries it may be difficult to achieve a quantum jump in export of manufactures. The changes in the Export-Import Policy 1992-97 may, therefore, turn out to be a good strategy in the short term. □

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Planning And Standardization

Sohrab and Praveen Gangahar

THE Bureau of Indian Standards (BIS), the National Standards Body (NSB) of India, is responsible for developing Indian Standards by the voluntary national consensus process. While BIS is able to respond adequately and promptly to market requirements, the changes in global structures, economies and trade together with the pace of technological innovation are certain to impose new demands on the organization. A major challenge is staying abreast of and anticipating demand for standards in new technologies and to treat adequately overlapping or merging technology areas. BIS strives to achieve market driven standardization which could be accomplished in three ways :

(a) Speed and efficiency in system administration,

(b) Quality and coherence in standard documentation and,

(c) Relevance and readiness to respond to market needs at national and global level.

To effectively respond to today's global market environment, planning in standardization becomes an important aspect. It peeps into the future, and anticipates what it is likely to be, how it will affect the organization, what direction the organization should move, and how to cope with the future needs. This would also lead to better utilization of limited financial, human and material resources of the organization and provide directed approach to its various activities. In essence, by adopting systematic planning, recognizing inevitability of change and the ability to meet the challenges to charter its course to encapsulate industrial needs and technological development in standards, the usable tools for economic development, BIS would provide synergy in the process of building international competitiveness in goods and services.

Standardization has been acknowledged as an indispensable tool to achieve increased productivity, improved performance and quality along side greater economy and more intra-industrial flexibility while keeping in sight advances in technology that could lead to further improvements. The conservation of resources and the achievement of the highest level of productivity within the limitations are essential on two counts to meet the demands of rising internal comsumption and for exports. The NSB plays an important role in achieving these objectives through preparation of standards and promotion of standardization. The process of standardization which is an activity of establishing with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order brings important benefits accruing from standardization in the improvement of suitability of products, processess and services for their intended purpose, prevents technical barriers to trade and facilitates techonological cooperation.

There is thus an intimate relationship between planning and standardization paving the way for coordination and direction of activities and setting goals for quality of goods.

The primary activity of an NSB is formulation of standards and operation of certification schemes. It relates to preparation and propagation of standards which form basis for attaining quality of goods and services. Thus it forms the basic core and encompasses most of the industrial activity such as conservation of resources, consumer protection, safety, import substitution, simplification and variety, rationalization, inventory control, materials management, mass production, judicious use of resources and last but not least quality upgradation and efficiency in production. Logically the planning function in an NSB is to ensure the furtherance of standardization and support functions in magnitudes and direction required by the organisation and the country. Identifying the needs, understanding them, effectively responding to them, and forecasting the future needs, gearing up the activities oriented to meet them, are all major aspects which planning in an NSB should address.

The main objectives of planning in an NSB are :

(a) To create a vision for the future of the organization by drawing

out perspective plan for anticipated developments in the field of technology, industry, and trade;

(b) To develop planning process and inculcate planning culture for systematic and integrated development to achieve the goals set before the organization ;

(c) To synchronize and follow the national objectives and directions in specific areas of national economy and plan for providing standardization and certification support to those areas;

(d) To undertake evaluation of implementation of the plan, its impact and appraisal against the defined objectives ;

(e) To monitor achievements of targets fixed for different activities and to build data base for planning elements ;

(f) To develop a sound corporate plan and lay down corporate strategy for organizational development.

Process Of Planning

The process of planning involves not only formulation of plans but also appraisal of internal conditions and external environment, defining of key areas and issues for planning, development of alternative plans for evaluation and execution. In the planning process forecasting which is estimation and projection of future events, is obtained through generation of information on several dimensions of economic, social and technological environment.

The process of planning revolves round the basic objective of the organization to provide standards and certification systems to raise the quality of goods and services. The three steps which are generally followed in the process of planning are :

(a) to establish a long term objective for the organization in meeting standards needs of industry, trade and commerce ;

(b) to establish an agreed strategy within which the organization interacting with its environment can evolve towards the overall objective ;

(c) to translate this strategy into specific plans, each contributing towards one element of the strategy.

Progress

By the time the First Plan was formulated, BIS had already issued 250 standards while work on another 450 was apace in basic engineering and agriculture sector. But it was apparent that its own resources were far too meagre to successfully undertake even a fraction of the total responsibility that developed on BIS through the Plan directive to mobilize industry to a concerted rationalization effort.

In order to systematically meet the national needs and determine priorities, concurrent with the Plans, BIS began to prepare and follow its own five year plans which spelt out its goals and targets. The first of these five year plans was framed towards the close of 1951 and this charted out the creation of a full complement of facilities to enable it to carry out its assigned task. The first and second plans were, therefore, concerned with the expansion of the existing activities to tackle accumulated work. Work was initiated on steel economy project and preparation of standards and codes in most basic industry was taken up. During the first plan of BIS product certification under the ISI (Certification Marks) Act 1952 started and gathered momentum during second plan (1956-61). It has now been brought under the Bureau of Indian Standards Act, 1986.

The policy of reviewing the plan accomplishments and projecting future needs on the basis of the assessment of the past was continued to determine the contents of the next plan. By now it was apparent that the demands of the industry were exceeding all anticipations and in the context of the Third National Plan (1961-66) the development of a strong Industrial base was once again stressed. In the face of this need, the third plan of BIS proposed to double the existing capacity and to produce standards per annum. To consolidate the accomplishments of its past work, it established new departments and reorganized the existing ones or to meet the growing demand.

In consonance with the national aim, the fourth BIS plan (1969-74) had concentrated on 'growth with stability'. Towards this end, the emphasis was more towards planning for consolidating the progress already achieved during the earlier plan periods and towards a more vigorous drive to secure implementation of standardization. For this purpose expansion had been visualized in certification marking activity, laboratory work and in training programmes for the personnel from industries.

Planning at regular five yearly intervals thus succeeded in stimulating not only an orderly growth but also helping in generating standards-consciousness among the people in the country. Its main contribution has been in enabling the organization to set realistic targets for expansion in the light of national needs and within practical limits, to be able to review objectively the advances made at regular intervals and to compare them quantitatively with the targets set earlier. Invariably it has been found that targets have been almost always exceeded. At the same time planning has proved to be a powerful instrument in achieving financial economy and operational efficiency.

Through systematic planning and

concerted efforts, BIS today has over 16000 standards, operated over 11,500 licences covering more than 7,000 industrial units in the country.

The planning process in BIS was limited to drafting of five year plans, and monitoring and execution of the plans was left to the different functional areas. As the organization grew in size and stature and activities diversified, implementation of plan elements did not receive the attention it deserved for harmonious development of planning process. A need was therefore felt for an organized planning activity in BIS during the VI Five Year Plan.

The need was further reinforced when a team of management experts appointed by the Government of India in 1982 to review the activities recommended centralized planning function in BIS as follows :

"There is a need for a strong planning function at BIS corporate headquarters. Its main task will be to keep BIS' strategy in balance with the changing environmental pressures and to translate the requirements of this strategy into programme and plans for annual implementation. The setting up of a planning unit directly under the Director General would strengthen his hands in ensuring that a proper balance is maintained within BIS among several activities that have to be undertaken assigning appropriate tasks to different units and exercising effective control."

In consonance with the recommendation of the team, it was decided to create a separate department of Planning and Coordination within BIS in 1984 to integrate, streamline, coordinate and monitor various functions. Thus an organized planning process started in BIS.

This concept was also integrated in the BIS Act which was promulgated in 1986 incorporating a provision for setting up of separate Planning and Development Advisory Committee to advise the Bureau on policy matters relating to :

(i) Long term plans including Five Year Plan proposals,

(ii) Corporate planning of the Bureau.

Functions

The main function of planning is to evolve perspective plan, five yearly plans and annual action plans to give effect to programmes and proposal for standardization, certification of both products and quality systems, laboratory testing and international collaboration for realizing the benefit from these activities in raising productivity, quality and efficiency in both industrial production and service organization.

The function of planning is not limited to planning but also overseeing the implementation of plans. For this purpose, a corporate data base has been built to monitor various activities. Each functional group implements the plan elements of its activities and inform planning function progress every month. This way there is a constant flow of information on the plan and through management control reports, the corporate management of the Bureau and the Government of India monitor the progress.

BIS under the BIS Act has been given the mandate to work for the harmonious development of standardization, quality certification, laboratory testing in the country. BIS while drawing out its perspective plan upto 2000 AD has set long term objectives for a comprehensive and complete, effective and efficient, national system of standardization. In this endeavour BIS plans to strengthen standardization and certification systems infrastructure to levels that would not only facilitate the production of quality goods and services in the country, but also foster exports.

BIS together with Government of India and other economic sectors in the country is currently engaged in planning for a system at the national level which would usher an era of the harmonious development of standardization and certification in the country. Sectoral Coordination Committees have been established in six identified areas of the economy such as steel, food processing, textiles, power, information technology and automobiles. These are entrusted with the task of coordinating the harmonious development of standards and avoiding duplication of efforts by agencies involved in standardization in these areas.

Planning has pervaded all activities of BIS. It plans for modernization of its operations, diversification to new areas in fulfilment of its objectives, and also self sufficiency. □

The authors belong to the Bureau of Indian Standards.

The Anti-arrack Movement

Dr. Radha Kumari

ADDICTION to liquor has become a fashion in society. The demon of addiction has taken in its hold the high and the low, the rich and the poor alike. Drinking has become a part of the household functions and celebrations in rich families. It has become a habit of a section of the middle class to visit bars after office hours instead of going home. And the labourers take to drinking just to gain momentary relief from the day to day problems.

Lakhs of people are ruining their health by arrack consumption and not by disease alone. Recently the uneducated but the wise women of Nellore District of Andhra Pradesh raised their voices against liquor which heralded a movement now known as Anti-arrack Movement.

In one of the adult education classes under the National Literacy Mission, the story of Seethamma was narrated to a group of men and women. An agricultural labourer Seethamma, recognising the destruction being caused to her neighbour's families by the arrack addicted husbands, gathered all the women, launched an agitation and succeeded in closing down the only arrack shop in the village.

To the women of Dubagunta village in Nellore District the story had a much deeper significance. To them Seethamma was not just a character in the story, but a model to emulate. If she, as an agricultural labourer could launch an agitation single handedly they too could do so. A few weeks later three men of their village who were drunk, fell into a well accidentally and died. This incident spurred the opportunity to identify liquor as the root cause of all their miseries and the women in Nellore District raised slogans such as "give up drink and wake up from ignorance", "give up drink and protect health" etc. The stirring anti-arrack slogans shook the entire town. The inspirational guidance extended by the veteran freedom fighter Mr. Vavilala Gopalkrishnaiah, added momentum to the movement organised by the rural women. Within a few days the struggle spread to all villages in the district. Soon all the arrack supply sources were blocked. There were sponteneous and simulteneous demonstrations in all the areas against the evils of arrack consumption.

Rampage

In continuation of the agitation some women went on rampage cutting the palm trees and not allowing the authorities to reach the venue of the auctions. Nellore District Collector to pacify women agitators introduced tickets to auction bidders and also promised them that in future the arrack business will be confined to professionals only. Not satisfied with this action, the women agitators forced the auctions to be put off indefinitely. The arrack dealers were in trouble. They could neither sell their liquor nor protect it from the agitators. In September 1992, the agitation figured in the State Assembly, wherein the opposition demanded immediate scrapping of arrack auctions and introduction of prohibition. It also found favour with the State Governor Mr. Krishna Kant. A district All Party Struggle Committee was formed to fight the proposed arrack auction. The Junior Doctors Association in the State too extended its support and volunteered to conduct camps in slums explaining the ill-effects of arrack consumption.

The women's struggle in A.P. consists of 20 non-political organisations who have come together to fight for the scraping of auctions and to bring about a complete ban on future manufacture and sale of arrack. All these organisations came under a single umbrella to form the A.P. Anti-arrack Struggle Committee with Ms. Renuka Chowdary as the Chairperson.

The noteworthy feature of the women's movement is that it is being led on the Gandhian Principles. Accepting non-violence as the main instrument, the women's committee expresses its willingness to prolong its struggle till the goals are achieved. The committee gave up the populist methods of agitation like rasta roko, dharna and such other ways which cause great national wastes.

In support of the movement, various cooperative societies in the State have declared that in future loan facilities would be extended only to those who give up drinking. Another attractive feature of the movement is that people of all income groups, with

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Biofertiliser : Opening A New Horizon

Dr. P. Bhattacharya and S.Ray Chaudhuri

THE main objective of watershed development programme is restoration of ecological balance in the degraded and fragile rainfed ecosystem and promotion of diversified farming systems to enhance the income levels of farmers and village communities on sustainable basis. Upto 1991-92, 2707 composite/Kisan nurseris have been established under watershed programme.

During 1989-90, the watershed development programme was taken up in 2.32 lakh ha. area with an outlay of Rs. 30 crore. For better monitoring of the schemes, Watershed Development Council (WDC) and National Watershed Development Policy Committee (NWDPC) have been constituted. Previously, the thrust of agricultural development was largely concentrated in irrigated areas. But the farmers in rainfed areas, particularly the smaller ones, are still practising subsistence farming. Hence, from the VII Five Year Plan, priority has been given on area development approach in the context of dryland rainfed farming taking 'Watershed' as the unit of development. Now, the programme is being implemented in 25 States and 2 Union Territories covering more than 100 districts.

A number of package of treatments ranging from agronomic to biological measures have been adopted. One of the main strategies of these schemes are to develop and disseminate appropriate technology for its successful implementation. The use of biofertiliser is one of such technologies.

Infact, the use of biofertiliser in India was initiated during 1954-1960. The present consumption of biofertilisers in the country is nearly 1200 tonnes.

Indian agriculture is primarily rain dependent. Of the 136 million hactares taken up under agriculture during 1987-88, only 43 million hectares were covered by irrigation. The rest depended on rain. All the community development blocks with less than 30% of their cultivated area served by assured means of irrigation are eligible for inclusion in watershed programme without any minimum or maximum limit of average annual rainfall.

Under rainfed condition, where the use of chemical fertiliser is restricted, biofertiliser can play a significant role. Besides small and marginal farmers, who cannot afford costly chemical fertiliser, biofertiliser is a boon for them. Biofertiliser cannot replace chemical fertiliser, but it can supplement it considerably.

Efficient Strains

Biofertiliser is a natural fertiliser. It is the preparation of efficient strains of micro organisms capable of converting atmospheric nitrogen into available from or solubilising phosphorus from the fixed form.

There are different types of biofertlisers like rhizobium, BGA, azotobacter, azospirillum and phosphate solubilising micro-organisms (PSM). The Southern Regional Conference on microbial inoculants was held in February, 1990 at Mahatma Phule Agricultural University, Pune where the use of all these biofertilisers at all zones has been recommended.

Rhizobium biofertiliser can fix 50-200 Kg. nitrogen per hectare per year. It increases the yield by 25-30% and 40-80 Kg. nitrogen is left over in the field, useful for subsequent crop. These are the biofertilisers for leguminous crops.

Blue greeen algae is the biofertiliser for paddy. Its use increases yield by 20-30%, by fixing nitrogen and producing growth promoting substances.

Azotobacter and azospirillum are biofertilisers for cereal crops. They fix 20-30 Kg. atmospheric nitrogen and yield can be increased by 10-15% if these biofertilisers are used. These biofertilisers also produce growth promoting substances.

Biofertiliser improves soil structure and texture, water holding capacity, supply of nutrients and proliferates useful soil micro or-

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A Profile Of Entrepreneurship Development

Vivek Deolankar

ENTREPRENEURSHIP has been recognized as an essential ingredient of economic development. The basic concept of entrepreneurship connotes an effectiveness, an urge to take risk in the face of uncertainties and an intuition, i.e., a capacity of showing things in a way which afterwards proves to be true. Various concepts and theories propounded seem to indicate that the emergence of entrepreneurs in a society depends upon closely inter-linked economic, social, cultural, religious and psychological variables.

In the course of a field Survey, an attempt was made to understand the background of entrepreneurs and their attitude towards the growth and modernization of their units. Partly through the questionnaires and partly during personal interviews they were requested to react to such questions as: What motivated them to start industrial ventures ? Did they have a background industrial experience either in their family or close circle or friends ? Did they receive any Governmental assistance ? Did any large industrial firm give them any special help and encouragement to start venture ? What handicaps, if any, that adversely affected the growth of their units ? Was there any difficulty in obtaining trained personnel ? Were there any problem to retaining the workers trained by them ? Table-1 throws light on the moti[illegible]ion to entrepreneurs for starting small-scale industries in India.

As regards the motivation for starting industrial ventures, a wide variety of responses were noted. For the owners of 196 or 37.12 per cent units a desire to do something pioneering and innovative was the main motivation. To make a contribution to the development of a particular state ; to introduce an entirely new industrial product in the market ; to place their home town on the industrial map of the country particularly in the field of sophisticated products ; to find an outlet for their creative urge ; to make full and effective use of their technical and manufacturing skills, and to provide employment to intelligent young men and women in their community were some of the motivating forces in respect of this group.

The main drive in the case of another group of 148 or 28.03 per cent entrepreneurs was a strong desire for independence and freedom. This group consists of those who had earlier worked either as craftsmen or sub-professionals and technologists in industry and Government or in managerial or administrative positions in Government Departments or private business concerns. These persons desired to discontinue working for other agencies or industries and wanted to have an independent venture.

In the case of 112 or 21.21 per cent entrepreneurs who had experience of trading in domestic and imported goods, the main guiding force was the bright demand prospects for the industrial goods the manufacture of which they undertook. Progressively increasing restrictions on import trade, familiarity with industrial goods in which they were trading for a long time, and the availability of surplus funds as a result of profitable trading operations were some of the factors which influenced their decisions. While, no doubt, the entrepreneurs in this group had the type of entrepreneurial ability required for business and finance, they often lacked operating industrial experience. However, some of them had taken steps to provide technological and industrial training to younger members of their family to enable them to take over the management of the units ultimately.

Seventy-two or 13.64 per cent entrepreneurs interviewed were graduate engineers who had the requisite technical ability to start an industrial unit and did not want to seek employment with others and some had entered industry because they had either hereditary artisan skills or took over a running concern from their forefathers. Similarly, few entrepreneurs had started their ventures as they were encouraged by large-scale undertakings by way of orders and other entrepreneurs had bought up existing industrial units which were about to go into liquidation in this group.

By and large, those entrepreneurs who had either industrial experience or technical qualifications realised the need for rapid expansion and modernisation of production. Even among these, however, only a few had given any serious thought to such aspects as improvement of productivity and markets, etc.

The state-wise picture reveals

TABLE 1
NATURE OF ENTREPRENEURIAL MOTIVATION FOR STARTING INDUSTRIES IN INDIA
(Year-1992)

Sr. No.	Name of the State	Total No. of sample entrepreneurs in India	Entrepreneurs with an ambition to do some thing pioneering, innovative and creative	Entrepreneurs desirous of being independent and running their own Unit	Entrepreneurs who started ventures as demand conditions were favourable	Any other reasons
1	2	3	4	5	6	7
1.	Maharashtra	176 (100)	60 (34.09)	52 (29.55)	40 (22.72)	24 (13.64)
2.	Uttar Pradesh	66 (100)	24 (40.00)	16 (26.67)	12 (40.00)	8 (12.33)
3.	Tamil Nadu and other States of India.	292 (100)	112 (38.35)	80 (27.40)	60 (20.55)	40 (13.70)
	All Entrepreneurs	528 (100)	196 (37.12)	148 (28.03)	112 (21.21)	72 (13.64)

Note : Figures in parentheses denote percentage to the total number of entrepreneurs in Column 3.
Source : Field Survey.

TABLE 2
PATTERN OF THE ORGANISATION STRUCTURE OF ENTREPRENEURS IN INDIA
(Year-1992)

Sr. No.	Name of the State	Total No. of sample entrepreneurs in India	Proprietory concern	Partnership concern	Co-operative concern	Private Limited Company
1.	Maharashtra	176 (100)	104 (59.09)	72 (40.91)	Nil	Nil
2.	Uttar Pradesh	60 (100)	32 (53.33)	28 (46.67)	Nil	Nil
3.	Tamil Nadu & other States of India	292 (100)	180 (61.64)	112 (38.36)	Nil	Nil
	All Entrepreneurs	528 (100)	316 (59.84)	212 (40.16)	Nil	Nil

Note : Figures in parentheses denote percentage of the relevant number of entrepreneurs to the total number of entrepreneurs in respect of state as shown in the column 3.
Source : Field Survey.

that 60 or 34.09 per cent entrepreneurs and 24 or 40 per cent entrepreneurs and 112 or 38.55 per cent units were started by the entrepreneurs with a desire to do something pioneering, innovative and creative in Maharashtra, Uttar Pradesh and Tamil Nadu and other States respectively. It may also be noted that 52 or 29.55 and 80 or 27.40 per cent entrepreneurs were motivated by the desire of being independent and running their own unit in Maharashtra and Tamil Nadu and other States of India. Whereas 40*

TABLE 3

CLASSIFICATION OF ENTREPRENEURS BY YEAR OF INCEPTION IN INDIA

(Year-1992)

Sr. No.	Name of the State	Total No. of sample entrepreneurs in India	Year				
			Before 1975	1976-80	1981-85	1986-90	1991-92
1.	Maharashtra	176 (100)	16 (9.10)	36 (20.45)	24 (13.64)	14 (25.00)	56 (13.81)
2.	Uttar Pradesh	60 (100)	8 (13.33)	12 (20.00)	8 (13.33)	20 (33.34)	12 (20.00)
3.	Tamil Nadu & Other States of India	292 (100)	24 (0.21)	40 (13.69)	60 (20.56)	72 (24.66)	96 (32.88)
	All Entrepreneurs	528 (100)	48 (9.10)	88 (16.66)	92 (17.42)	132 (25.75)	164 (31.07)

Note : Figures in parentheses are percentages to raw totals column 3.

Source : Field Survey.

or 22.72 per cent entrepreneurs in Uttar Pradesh, 60 or 20.55 per cent entrepreneurs in Maharashtra and 12 or 20 per cent units in Tamil Nadu and other States who started ventures as demand conditions were favourable to entrepreneurs in India.

The data collected about organisations structure of entrepreneurs are presented in Table-2. The typical form or organisational structure in the entrepreneurs appears to be proprietory ownership. 316 entrepreneurs, i.e., 69.84 per cent of the total entrepreneurs were found to be proprietory concenrs of single man ownership. The next popular form that of 212 entrepreneurs, i.e., 40.16 per cent of the total entrepreneurs was found to be organised as co-operative society and private limited company.

State-wise variation from the Table-2 shows that in Maharashtra 104 entrepreneurs (59.09%) were organised as proprietory concerns while 72 entrepreneurs (40.91%) were organised as sole partnership firms. Similarly, in Uttar Pradesh, 32 entrepreneurs (53·33%) were organised as proprietory concern whereas 28 entrepreneurs (46.67%) managed as partnership. In Tamil Nadu and other States entrepreneurs, however, the number of single man proprietorship was 180 entrepreneurs (61.64%) as against 112 entrepreneurs (38.36%) of partnership concerns. Thus it might be stated that proprietory concern was more popular in Tamil Nadu and other States of India and followed by partnership firm in Uttar Pradesh and Maharashtra.

The information collected about the pattern or the organisation structure and development of entrepreneurship respectively in India are presented in Table 3.

The Table throws light on the pace of industrialisation in India. Fortyeight entrepreneurs survived (9.10%) out of the sample 528 entrepreneurs established before 1975. Whereas 88 entrepreneurs (16.66%) were established in the period from 1976 to 1980. It might be seen from Table 3 that the pace of industrialisation in India remained relatively slow upto 1985. Thereafter it witnessed a considerable increase in the pace. 132 entrepreneurs (25.75%) and 164 (31.07%) were set up respectively in the period from 1986 to 1990 and 1991 to 1992.

State-wise break-up shows rapid development of entrepreneurs in Maharashtra and Tamil Nadu and other States as compared to entrepreneurs in Uttar Pradesh. These figures indicate that the formal industrial and entrepreneurship growth in India was with heterogeneous type of entrepreneurs.

It is difficult to stimulate entrepreneurship among the people in the backward, rural, and tribal areas, and much more difficult to sustain their interest. The problem particularly with the first generation entrepreneurs, is lack of business experience which is so very essential for a small entrepreneur to compete successfully in an open market against well established and stronger medium and large scale industries. Another area where the promotional agencies are yet to make a dent is development of entrepreneurship among the weaker sections, tribals and women who constitute a large section of the Indian masses and need to be brought into the mainstream. The only silver lining is that India has acquired useful experience in the field of small industries development over these years and with its knowledge, experience, perseverance and determination, one can hopefully expect the rural scene to change in the years to come. The age-old theory, that entrepreneurship is born and cannot be developed by human efforts is now falsified. The fact is, entrepreneurs are not born, they are made through different training programmes. ◻

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Communicating With The Tribals

Jitendra Prasad Patro

And

Sudam Charan Patro

ALTHOUGH the failure of our development programmes cannot be blamed solely on communication factors, the role of communication in development cannot be disregarded. It is also said that without effective communication, deliberately planned, organised and directed in manner and form peculiarly relevant to the existing environment, very little in developmental terms is likely to be achieved.

Our experience in the field of tribal development also indicate lack of effective communication between the different government agencies and the target groups in the process of implementation of various developmental programmes. A major weakness of such programmes is that they lacked people's participation, while participation is considered as a special form of interaction and communication.

Communication, as we understand, generally takes place at two different levels—interpersonal communication and mass communication. While interpersonal communication involves the act of transmitting information, ideas, attitudes from one person to another person, mass communication, on the other hand refers to the process of delivering the same to a sizeable audience through various media.

The role of communication in different development programmes is important. The communication of the plan's aim to the targeted people is the key factor for that plan's success.

As the tribals live in extremely closed and isolated societies, they remain more or less cut-off from the mainstream of national development. Illiteracy, ignorance, blind faiths, voodooism and love for traditional way of life still stand in the way of introducing socio-economic innovations among the tribals of the country. While vigorous efforts are now being made to imporve the lot of the tribals in our country, the concern for their development is, however, not new. In the process of finding solutions to the existing problems, the new facets of the problem tend to emerge.

Economic development entails appropriate socio-cultural changes which the tradition bound tribals resist at first. The problem lies in perception and attitude, born out of ignorance and unwillingness to change. It, therefore, becomes necessary to create an awareness for change among the tribals which would be possible by ensuring adequate flow of development information to tribal areas through the various channels of communication.

Channels

With rapid development of technology new and sophisticated channels of communication have emerged which have revolutionised the communication scenario and have enabled us to communicate faster and with greater effect.

Research and development have also given us new paradigms of communication at various levels, thereby creating a vast potential for communication using the various channels that range from interpersonal to satellite.

This include such diversified media as newspapers, radio, television, films, low-cost visuals and traditional folk media etc. Besides, the opinion leaders in the tribal villages and the officials at the block level and other government officials are potentially very much powerful channels of communication.

Communication with the tribals is a very difficult task. This is due to the lower receptiveness of the tribals to modern communication channels. Now we discuss the effectiveness of various channels of communication for tribal development and reasons for that.

Mass Media

Exposure to development information through the newspapers or any print media is minimal in tribal communities. This is due to both poverty of the people as well as widespread illiteracy. Hardly any tribal subscribes to newspapers and few of those who are exposed to this medium, spread the information through gossip groups.

Although radio happens to be quite popular among tribals and a number of bulletins on development issues are being broadcast regularly, the timings of such bulletins and the language of their presentation act as the main

handicaps in their popularization. If the programmes could be produced using tribal dialects, their interpretation would become much easier. In case of television, too, similar problems arise, although it is very costly for them. They are attracted to this only for the sheer joy of watching moving pictures.

Low-cost visuals like posters, folders, booklets, brochures, wall-hanging and pamphlets etc. are used mostly by the DAVP and other government department. However, most of the illiterate tribals fail to interpret the desired message and also sometimes they misinterpret the message.

Traditional Media

Folk forms which have traditionally been used in India as a means of dissemination of information are potentially powerful channels of communicating development information. Attempts were also made to use the folk media to convey developmental messages through channels of mass media. The Satellite instruction Television Experiment (SITE) conducted in India between August 1975 and July 1976 was considered to be the most significant in this direction. Under this massive experiment, three hours daily programmes were directly beamed to 2,330 villages in seven States for 3 hours daily in four languages : Oriya (Orissa), Hindi (Bihar, Rajasthan and Madhya Pradesh), Kannada (karnataka) and Telgu (Andhra Pradesh). Similar attempts were also made by the broadcasting media through the various all India Radio Stations. Some of the examples are the Bhavai format used by A.I.R., Ahmedabad, Burrakatha by the Vijayawada station, Nautankee by Lukhnow. However, the use of this media for development communication purpose either in mass media formats or through live performance is still to become popular.

Voluntary Agencies

The voluntary agencies can also play a very important role as a medium of communication with tribals. The advantage with these agencies is that they enjoy greater proximity with the local people which enable them to create better trust between the government and the people. This will facilitate acceptance of the various development programmes of the government by the tribals.

At present there are several such agencies working in the tribal areas. They concern themselves with such common problems of people like health, literacy, agriculture etc. as well as those problems which are exclusive to the tribals.

Opinion Leaders

In the Under Developing Countries like India, where availability and use of mass media facilities are limited, the role of opinion leaders acquire special significance. Known as the two-step-flow communication, here the information first reaches the opinion leaders who in their turn pass it on to their associates among whom the opinion carries value. Hence interpersonal relationships are the channels of communication.

People like the village livel worker, the Sarpanch, the school teacher are very effective as opinion leaders in the tribal villages. A study on "Impact of Bank Finance on Tribals", conducted by the Centre for Development Studies, Bhubaneswar revelaed that all the 80 beneficiaries interviewed replied that they learnt about the bank loan from the Village labour welfare officer. Also the religious heads have influence among the tribals as opinion leaders.

Official Channels

The Block Development Office continues to be the major source of all developmental information for the tribal villages. The Block office communicated to the tribal villagers through the so-called development agents. Some of them like the Village Labour Welfare (V.L.W.) or Gram Sevak, the Block Agricultural Officer (B.A.O.), the Block Animal Husbandry Officer (B.A.H.O.), the Lady Health Visitor (L.H.V.), the Family Planning Officer (F.P.O.) are very effective as development communicators.

Besides the above development agents several officials also act as channel of development communication. The officials of the local rural banks, the co-operative societies, the primary health centre etc. are also very important in this sphere.

It is seen that there are a number of obstacles in communicating with the tribal people. Problems like lack of access to mass media, widespread poverty, illiteracy, the problem of language etc. act as great hinderance in communicating with them. Also the interpersonal media is found to be more suitable than the mass media. The success of this media can be attributed to the informal relationship between the communicator and his audience. Similarly, the use of interpersonal media does not require the recipient of the information to incur any cost as in the case of mass media.

Unlike elsewhere the problem of communicating in the field of tribal development spells certain special difficulties. Besides the Physical barriers the communicators has to overcome the mental barriers which are quite formidable. In this regard the following suggestions may prove useful.

* As the tribals do not have regular access to the various channels of mass media, attempts should be made to establish community centres with televisions, radios and newspapers.
* Programmes for television and radio should be produced using tribal dialects. Other publicity materials should also use language and formats that can be easily assessed by the tribals.

* Attempts should be made to spread literacy among the tribals, so that printed media can be successful.
* The traditional folk forms like folk dances, songs, action plays should be used both in mass media as well as live shows to spread development information.
* It is also necessary to use opinion leaders like village school master, post master and religious head as carriers of development information.
* Government should promote the various voluntary agencies working for tribal development by giving them infrastructure and other facilities at the tribal areas.
* It is important that the village committees and Gram Panchayats should be aware of recent policies of government to the tribals.
* The weekly market and common meeting places should be used as platforms to spread development information.

All these measures would go a long way in imporving the communication scenario in our tribal villages and foster the momentum of development of the tribals by motivating them to participate in the development process. □

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ganisms. It is cheaper, pollution free and renewable.

The inconsistent yield responses often observed with inoculation show that an assessment has to be made whether inoculation is necessary every year especially in case of rhizobium. In general, if the native rhizobium population is inadequate (due to soil factors) inoculation may be necessary. Uninoculated plants can be observed around 20-25 days after sowing for nodulation to assess this. A nodule number of 20 or above/plant indicates that the soil is not deficient in rhizobia. Another indication can be the presence of N-deficiency symptom in the crop and a positive reponse to applied N. Inoculation may also be necessary when pulse crops are grown in rice fallows. In all other situations inoculation is generally practised to introduce on effective strain against the native and supposed by ineffective rhizobia. No clear data are available on the success or failure of this objective. This is particularly true in crops like groundnut which nodulate profusely with native rhizobia. However, recent experience with rhizobium indicates the high genetic instability of the nitrogen fixing character which often leads to its loss meaning thereby that competitive and stable strains have to be found to succeed in replacing the native strains and provide higher fixed nitrogen to the crop.

Seed treatment (except BGA where broadcasting method is recommended) is the best method of inoculation. The steps are as follows :

1. 200 gm of biofertiliser is required to treat 10-14 kg of seed.
2. Suspend one packet of 200 gm. of biofertiliser in approximately 400 ml-water and mix thoroughly.
3. Pour this mixture on seeds and mix with hands to obtain uniform coating on each and every seed.
4. Spread the seeds in shade for drying for 10-15 minutes and sow them immediately.

Biofertiliser is still not popular due to various reasons :

(a) Lack of proper education to the farmers about biofertiliser.

(b) Lack of proper marketing and distribution channels etc.

(c) Lack of quality of guarantee product.

For proper education on biofertiliser, State Government should make a vigorous and innovative effort.

Realising the importance of biofertiliser, the Ministry of Agriculture has launched an ambitious project on biofertiliser with headquarter at Ghaziabad and six other Regional Centres in different agroclimatic zones. The success of this national scheme depends on appropriate plan and programme of State Governments and better co-ordination between Central Government and State Governments. □

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Union Budget

A Bold Initiative

S. Narasimhan

THE presentation of the General Budget in a democracy is an all important agenda in the annual feature of Parliament. While people expect concessions of various kinds, the elected Government sees it as an effective instrument to renew its credibility and strengthen the confidence reposed on it by the people at large. The priorities, therefore, before the Government are clear. Firstly, it will intend to keep the economy moving at a reasonably accelarated pace and secondly, it will intend to keep the masses on its side in the event of a test for survival arises. Apparently, the two seem to go hand in hand. One is more of economics and efficiency while the other is politics and populist in principle. The trade-off between the two has to be understood in the proper perspective when drawing any programme of action plan for the economy. Given the freedom and option, any Finance Minister would like to strike a judicious balance between growth of the country and continuance of the Government through annual budget. This attempt has become more transparent this year than ever before, when the Finance Minister, Dr. Manmohan Singh, presented the General Budget for the year 1993-94.

Considering the complexity of the task and diverse aspirations of different sections of the Indian society, the economist turned politician Dr. Manmohan Singh needs to be congratulated for his commendable effort. The budget he designed for this year clearly points to the fact that the consolidation of the conomy is given uppermost attention. Structural reforms are needed still to put the Indian economy on better bargaining terms against other countries in the international arena. On the domestic front, fiscal corrections have to be made to contain the inflationary pressure within tolerable limits. Reckoning the reality that still a majority of the Indian masses live in poverty and also the financial state of the federating units, the Finance Minister has set a reasonable allocation of 32 per cent towards development programmes. And he could effect this without its evil influence i.e. widing the budget deficit, which finally stood at a lowly figure of Rs. 4314 crore.

Priorities & Options

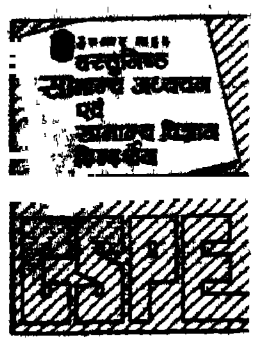
The Government faces too many constraints but at the same time it has to address itself to a number of priorities. Under such circumstances, the right approach would be to choose certain crucial sectors for toning up and reform, rather than to touch every sector of the economy and effect marginal changes. Accordingly, the budget concentrates more on the external sector with a view to making the Indian industries internationally competitive. On the domestic front, the banking sector has received the best attention followed by industrial sector. The cut on excise duty on a wide range of articles of common consumption, if leads to a fall in their prices, will push the demand up, especially in cases where the demand is relatively elastic. This is likely to provide the necessary incentive for opening up and also act a sort of lever action to the producers in adjusting the cost structure. When industries expand in terms of number and scale of production, reasonable finance must be available to them. The lowering of Statutory Liquidity Ratio (SLR) proposed in the budget is a right step in this direction.

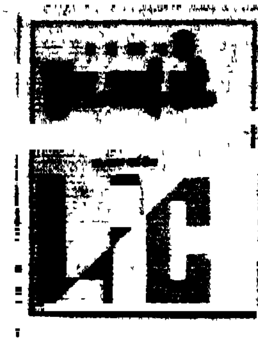
Whether it is international arena or the national scene, the various proposals in the budget point to the excessive reliance on the market forces, namely demand and supply. For instance, the bold initiative taken in allowing the rupee fully convertible implies that the value in the international market for all trade transactions now will be determined by the market forces alone. The questions like, where the rupee will settle, will it be advantageous to our economy and so on would solely depend on how the participants, exporters and importers in the international field are going to perform. ☐

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Blazing A Trail

B.N. Gurumurthy

INDIA'S first remote sensing satellite IRS-IA has done well beyond a period for which it was designed and has performed successfully. Designed for a life of 3 years, it has recently completed 5 years of useful service to the nation and is expected to last till the end of this year. The quality of the imageries it is sending to earth continues to be excellent.

Launched on March 17, 1988 from the Baikonur Cosmodrome of the erstwhile USSR, the IRS-IA with its two linear imaging Self-Scanning Sensors has sent more than 4 lakh high quality pictures. The data sent by IRS-IA has enabled the country to estimate the extent and the yield of areas growing wheat, rice, groundnut, cotton and sorghum. Mapping of saline/alkaline soil and land use/land cover of the entire country has been carried out and in specific areas waste lands that could be made fit for cultivation have been indentified. Urban sprawl maps of all major cities of the country have been prepared which can be used for their planned development. Erosion-prone areas in selected major watersheds in different terrains/environmental conditions have been identified. Maps showing ground water potential in drought prone areas have been prepared. IRS-IA data have also been used for mapping and monitoring the coastal areas. In select areas mineral prospecting has also been done using the IRS-IA data.

In tandem with IRS-1B launched on August 29,1991, IRS-IA has enabled collection of remote sensing data more frequently (with a repetitive cycle of 11 days instead of 22 days). These two remote sensing setellites have become the mainstay of the National Natural Resources Management System for effectively managing the country's natural resources.

The satellite control centre at Bangalore along with ground stations at Lucknow and Mauritius, regularly tracks and monitor IRS satellites. The National Remote Sensing Agency at Shadnagar near Hyderabad receives the satellite data and these are processed and distributed by NRSA through its facilities at Balanagar, Hyderabad.

New Horizon

Based on the data of Indian Remote Sensing Satellites IRS-IA and IRS-IB, action plans have been prepared for sustainable integrated development in six-selected districts of the country. The Planning Commission has decided to go ahead with the implementation of these action plans which have been prepared for watershed areas in the six districs of Ahmednagar (Maharashtra), Anantpur (Andhra Pradesh), Bhiwani (Haryana), Dharmapuri (Tamil Nadu), Jhaba (Madhya Pradesh) and Kalahandi (Orissa). Prof. U.R. Rao, Chairman of the Indian Space Research Organisation giving the details of this unique effort to media persons in Bangalore recently said that 149 districts in various states have been selected for sustainable integrated development and pilot studies have been initiated. He said that considering the fact that our productivity and per acre yeld of food grain is well below the world average, the need for optimum and judicious use of our land and water resources becomes all the more imperative. Feeding the ever increasing population of the country is a crucial need and we need to produce 210 million tonnes of food grain by the turn of the century.

An intergrated development approach therefore assumes significance. Such an approach provides utmost economy in time and cost and ensures integration of various aspects to achieve sustainable development at the grass roots level. At the same time the need for adopting ecologically friendly technologies and utilising resources at an optimum level cannot be overemphasised.

Scientific and efficient use of natural resources is the aim of integrated sustainable development. It calls for planning strategies for optimal utilisation, preservation and conservation of resources. Space technology has to play a key role in the development of integrated sustainable development models. Pilot studies on the integrated approach for sustainable development

have been taken up under the National Natural Resources Management System and the Department of Space is the nodal Agency. The districts where the studies are undertaken represent diverse terrains, agroclimatic zones and social and cultural practices. Solutions that are site-specific are being evolved through integrated resources survey using satellites and collateral conventional data. Each of the land categories having similar climatic and productive capacity is further divided into micro level units depending upon the type of soil erosion, salinity/alkalinity of the soil, moisture holding capacity etc...There often suitable conservation/ management measures are suggested for their development.

The decision of the Planning Commission to implement the action plans under the Integrated Mission for Sustainable Development using space data in tandem with conventional data would domonstrate the immense possibilities of achieving all round development without degrading the environment.

Generation Satellites

The second generation IRS satellites IRS-IC and IRS-ID would be state of the art satellites and would not only ensure continuity of remote sensing service but would also enhance the quality of services. The data that these two satellits would be providing will be of immense use particularly for agriculture. The cameras of these satellites will have better resolution, stereo viewing and on board recording facilities. IRS-IC is expected to be launched by the end of next year and IRS-ID during 1997.

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different levels of education, are seen actively participating to make the movement a success.

Activities of the movement is categorised into two phases. The first phase consists of efforts undertaken to create an awareness among the people about the ill effects of arrack consumption and the second phase included various measures taken to create an awareness in the Administration and the Government regarding the aim of the agitation.

For the first time in the State a polling was conducted in November, 1992. The majority of the voters were for prohibition of arrack. The women leaders who conducted the polling, submitted the result along with the ballet papers to the Chief Minister.

Women agitators also brought out a flag as a symbol of the Anti-Arrack Movement. This is hoisted in most of the villages by the women leaders. It is like a symbol continuously reminding people about the evil effects of liquor. Women who are traditionally house-bound are now seen patrolling the villages at night to stop the entry of drunkards from neighbouring villages.

As a part of the second phase of the programme, women have taken a decision to withhold the payment of water, land, electricity and house taxes, to stop the repayment of loans taken from bank and to propogate that the enhanced bus and train fares should not be paid by untill the Government realises the implications of the social evils like arrack on the people. An interesting decision taken by the women in this regard is to socially boycott those who involve in the sale of arrack and those who rent out their houses as arrack godowns or shops.

The essence of the movement seems to have gone deep into the minds of many people. Many individuals who left drinking are themselves fighting for prohibition. Also Kondapeta, Sivaru, Pedamajjipalem villages in Vijayawada District and a few villages in Nellore district, once notorious for the manufacture and sale of arrack are now free from the invasion of arrack.

The author is lecturer at Sri Satya Sai Institute of Higher Learning, Anantapur, A.P

Review Article

Better Life With Science

Biman Basu

THE prime objective of any development activity is ostensively to improve the quality of life of the people at large. But, then, how does one define quality of life ? Can it be measured by some quantitative indices like the consumption of steel, aluminium or energy, per capita income or the growth rate of the GNP ? Economists and planners world wide have been using these indices to define the standard of living, but of late it is being increasingly realized that it is not enough to address issues of human life in terms of quantitative numbers alone ; there is much more to it. So when Dr. S.Z. Qasim, General President of the 80th Science Congress chose "Science and Quality of Life" as the focal theme of the Congress, he decided to look at the subject in its entirety, from various angles. To do that he invited experts—distinguished scientists, technologists, social scientists, planners, industrialists, even administrators-to present their points of view which have been put together in this information packed volume. The fifty articles in the book are grouped into six sections. The topics covered range from the commonplace health and population matters to frontier S&T areas like space, biotechnology and information technology. The Prime Minister, Shri P.V. Narasimha Rao, has written the Foreword.

For a populous and developing country like India the importance of planning for balanced development cannot be over emphasized. "careful planning can give significant results in human development even with moderate levels of income," says, Sh. Pranab Mukherjee, the Deputy Chairman, Planning Commission, in his paper entitled 'Planning for Quality of Life'. "...the pattern of development of the western world is already proving to be non-sustainable from ecological point of view". For India, he says, the western pattern of development will not be feasible and not all technologies considered essential in the West may be quite relevant for us. "Science offers the potential for taking a fresh look at these technologies and to develop innovations that suit our local conditions of producting more, using less of basic resources...Perhaps, it is science, and science alone that will open up the path for sustainable development." he says.

Looking at the health scenario, which is an important indicator of the quality of life of any people, Prof. J.S. Bajaj, Member, Planning Commission, notes that despite many successes since Independence in terms of rise in life expectancy, fall in infant mortality, and spread of health care services, there still lurk "some of the stark realities", which need more attention. For instance, "Half of the total number of people afflicted with tuberculosis in the world, and a majority of those with leprosy, live in India...Maternal mortality is still unacceptably high." He ascribed this to poor utilization of the health and family welfare infrastucture by the people. "What is important", he says, "is to realize that the efficiency and effectiveness of this infrastructure can be considerably improved by ensuring provision of complimentary equipment and other necessary inputs, by improving the knowledge, skills and attitudes of the health man-power who are involved in the day-to-day management of the services, and most importantly, entrusting a majority, if not all, of the managerial functions to the people and their institutions". Laying stress on appropriate technology rather than the high-cost technology that has revolutionized medicine in the developed countries, Prof Bajaj says, "it must be accessible, affordable, and acceptable, with confirmed validity, and proven potential for improving the quality of health care services."

Dr Vasant Gowariker, former Adviser to Prime Minister on Science & Technology brings out interesting

SCIENCE AND QUALITY OF LIFE :
Edited by Dr. S.Z. Qasim, Published by The Offsetters, New Delhi (1993); Pp. 620 + xii, Rs. 600.

cts about population dynamics in s paper 'Improving the quality of ife for Billion Plus Indians.' ccording to him there is utmost gency for the implementation of ro components related to quality of 'e-literacy and available energy. nly then, he says, can the numbers come a productive resource. But fore that can be achieved, he warns, r runaway population growth must checked. "Perceiving the various mensions of the problems of human eds and the quality of life," he says, ne gets fully convinced that unless e question of population control is gressively pursued and some ability is achieved, a real provement in the quality of life is fficult to accomplish."

Energy is a key component that cided the quality of life. nfortunately, however, it is a mmodity which cannot be oduced at will. Fossil fuel reserves, orldwide, are limited and renewable urces have yet to take off on a large ale. The only alternative left to the veloping countries like India for creasing the availability of energy r capita is to conseve energy and e it more efficiently. However, says K. Chopra, Adviser, Planning ommission, any energy nservation strategy in developing untries cannot be a mere copy of niliar programmes of the developed untries. Rather, it must take into count the specific socio-economic d energy situations in these untries. "While the need for real duction in energy consumption is exceptionable", he says, "energy nservation in developing countries nnot be taken as an end in itself, t rather as part of a comprehensive ogramme in which energy ficiency is embedded in the total onomic energy system and is signed for improving efficiency in oduction, transmission and stribution of energy in all sectors of economy".

In his paper, 'An Alternative Strategy for Energy Development', Dr. R.K. Pachauri, Director, Tata Energy Research Institute, suggests "the diffusion of enery-efficient lighting in the domestic sector, use of enrgy-efficient refrigerators, shift from road to rail transport and establishment of rapid transit systems in the metro cities," as also wider use of solar cookers, improved cookstoves and use of compressed natural gas for driving vehicles as energy options compatible with improving the quality of life of the Indian people.

The Council of Scientific and Industrial Research is one of the oldest scientific bodies engaged in research aimed at improving the quality of life through the application of science and technology. Be it in the field of food, housing, health or environment, or in frontier area like electronics, new materials or biotechnology, CSIR's contributions have been notable. "CSIR laboratories", says Prof. S.K. Joshi, Director-General, CSIR, in his paper, "have taken special care to undertake projects which will lead to an improvement in the quality of life of our people".

The role of modern technology in improving the quality of life is exemplified in our daily life in various forms—electronic gadgets, satellite TV, improved agricultural product through biotechnology, and the like. Prof. U.R. Rao, Chairman, Space Commission of India, in his paper, 'Space Technology as an Essential Tool for National Development', brings out the salient features of India's space programme and its achievements including the spectacular communication revolution usheared in by the INSATs and the many benefits that the extensive application of space technology have accrued to the nation.

Dr. P.P. Gupta, former Chairman and Managing Director, Computer Maintenance Corporation, in his paper, 'Electronics and Quality of Life', underscores the pivotal role electronics plays today in the daily life of the common man. Uptodate news and entertainment through radio and TV, reliable telecom facility, quick railway reservation, ultra modern medical diagnostic facilities, not to speak of the ubiquitous computers, are all products of electronics which in one way or another have made the life of the average citizen much easier. What is more, "electronics is one area where prices are dropping but their value as a multiplier effect is rapidly improving our living standards".

Biotechnoloy is another area which has made rapid inroads into our daily life and holds great promise for the future. Dr. V.L. Chopra, Director-General of Indian Council of Agricultural research in his paper, 'Biotechnology for Agriculture in India', enumerates the many successes achieved in improvement of crops and livestock through biotechnological means. He says, methods have also been standardized for producing transgenic fish through expression of growth hormone genes micro-injected into the eggs of commercially important fishes which has increased their growth rate by as much as 20% giving bumper catch in a relatively short time.

The use of biotechnology in improving the nutritional status is discussed in a paper authored by Dr S. Ramachandra, former Secretary, Department of Biotechnology and B.M. Gandhi of the same Department. Through better understanding of the biological pathways of food crops and applications of biotechnology, they say, it would be possible to produce food crops which are not only disease and pest resistant but which also produce grains with superior nutritional quality.

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The Most Viable Alternative Source Of Energy

INDIA is blessed with abundant solar energy with a daily value of 5.5 kw per metre. For example, the *quantum of sunlight* received by the State of Rajasthan alone is sufficient to meet the annual energy demands of the world. With the growing realisation the world over that the fossil fuels are not inexhaustible, the need to evolve new ways to tap this perennial source of energy has assumed a sense of urgency. If effectively tapped, solar energy, along with other non-conventional sources of energy can also be a viable solution to the problem of energy shortage in India.

The most important thing in the Indian context is that solar energy can be provided in a decentralised manner and is also environment friendly. Solar energy is today used in India for several purposes like heating water, heating and cooling of buildings, drying of agricultural and animal products.

Vast Potential

The vast potential of solar energy in the country is being tapped through photovoltaic conversion. Through solar photovoltaic cells (spv) direct conversion of sunlight into electricity is possible. These cells are based on certain properties of crystalline solids.

Solar photovoltaic cells are being used in the country to pump water for drinking and minor irrigation, street and community lighting, for running community TVs, supply of power to offshore platforms and microwave repeater stations. About 34,000 spv cells had been installed by March 1991 for such purposes. About 70 experimental spv plants having a range of 1 Kilowatts peak (kwp) to 25 kwp with a total installed capacity of about 4 MW are already functioning in the country. With indigenous efforts, the country has acquired a capability ranging from silicon production to fabrication of solar cells, modules and systems for decentralised power generation. The SPV systems have proved very useful in meeting the small power requirements for various application in remote areas.

A box type solar cooker is currently available in the country which can be used for boiling, baking and roasting. Though it cannot be used for frying and making chapatis, efforts have been initiated to develop solar cookers suited for this purpose.

An investment sharing scheme for the purchase of box type solar cookers was launched in 1982. Under this scheme the government of India gives a subsidy of Rs. 150 or one-third of the cost of the cooker, whichever is less. Over 1.8 lakh solar cookers have been sold in the country from the date of inception of this scheme. Community solar cookers for cooking meals for groups of people have also been made available under the cost sharing scheme.

Solar Thermal Power

Solar energy can also be converted into electricity through the solar thermal route. Two experimental solar thermal power plants with a capacity of 20 kw and 50 kw have been installed in the country at Salojippally near Hyderabad and Solar Energy Centre at Gwalpahari, respectively.

In the area of process heating, solar pond technology has emerged as the most cost effective technology, provided the land is available. The technology developed at the Indian Institute of Science, Bangalore, is now being used for regular supply of hot water to users at two sites in Karnataka. Asia's largest solar pond with an area of 6000 sq.mt has successfully been constructed and stabilised at Bhuj in Gujarat. This pond would provide 90,000 litres of hot water at 80 degrees centigrade to Bhuj Dairy for various process heat requirements. This pond will also be used for conducting experiments on desalination, drying and similar other applications.

The Department of Non-Conventional Energy Sources (DNES) has also sponsored R&D projects to develop solar refrigeration and cold storage plants for the storage of life saving drugs and vaccines and other perishable dairy and agricultural produce in remote, un-electrified areas. The main achievement in recent

past in this area is the development of a solar refrigeration system capable of producing one kilogram of ice per day using water zeolite system. The Technology is now being developed for larger capacities with improved design. Under an Indo-German project, a solar thermal pump with a capacity of 1 KW (hydraulic) has been developed. It can draw water from a depth of 40-50 metres on a clear sunny day.

Solar Passive Concept

The increasing requirement of energy for keeping the living and working space comfortable can be supplemented by incorporating solar passive features in building designs. Efforts are being made to develop thumb rules for building designs for six different climatic zones of the country. This will help the architects in designing energy efficient buildings. Six such buildings have already been constructed in four different climatic zones. Solar huts have also been developed and demonstrated to provide comfort to jawans in the difficult, remote and hilly areas of J&K, Himachal Pradesh and Uttar Pradesh.

Under a sponsored project at a hospital in Bombay, solar thermal energy has successfully been used for thermal conditioning of the room for providing thermo neutral environment to newborn babies to improve neo-natal survival. The incubators otherwise used for this purpose are quite expensive and can accommodate only one baby at a time. The solar incubator is economical and can accommodate more than one baby at a time. This technology is highly suitable for rural areas where medical facilities are very limited. The use of passive concept in designing can also be used to control humidity and temperature inside green houses to facilitate the growth of plants and vegetation under adverse climatic conditions. Severn such green houses have been constructed in Leh and Kargil for this purpose.

G-15 Approval

India's active efforts in this fi received a boost when the Indi project relating to solar ener applications for fabrication of am refrigeration was approved at the fi summit-level meeting of the group South-South consultation a cooperation (G-15) held in Ku Lumpur in June 1990.

The revised project propo approved by the G-15 Carac Summit, envisages a netwo approach involving cooperation solar energy applications. The include solar photovolta applications for refrigerators, lighti systems and water pumping f drinking water suppply. They al include solar thermal applications 1 refrigeration, cookers and drying.

The objectives of the propo also include the setting up necessary research and informati facilities in member countries, qui and effective flow of information a development of requisite manpow needed in the emerging fields of so energy applications.

Contd. from page 25

New materials such as ceramics, composites and advanced polymers have revolutionized technology encompassing a wide spectrum of sectors like transportation, power generation, architecture, aerospace, communication, microelectronics and bioengineering to name a few. Stressing the crucial role of new materials in shaping India's future, Prof. C.N.R. Rao, Director, Indian Institute of Science, says, 'advanced materials is one area where the benefits of R & D will eventually reach all of mankind", but in his view "the research effort itself will be concentrated in a few countries advanced in Science and Technology". Dr. P. Rama Rao, Secretary, Department of Science and Tchnology, on the other hand suggests the constitution of an autonomous National Advanced Materials Research and Development Board to speedily develop capability in this vital area. "Unless we develop capabilities in this sector", he says, "we will be left behind in the vital field of high technology which is so important for improving the quality of life of our people.

Notable among others who ha contributed to the volume are pr M.G.K. Menon, Prof. D. Chattopadhyay, Dr M. Swaminathan, Prof. P.N. Srivasta Dr. N. Seshagiri, Dr S.M. Kulshres and Dr. Harsh K. Gupta. T spectrum of subjects covered in t volume is truely vast and the issu raised are highly relevant. It is hop that the volume will provide valua inputs for scientists, technologis planners and policy-makers and he them take the right decisions to ma tomorrow's India a better place live in.

Book Review

TRIBAL INDEBTEDNESS : By P. Ramaih and K. Murali Manohar; Himalaya Publishing House; Pages 103 ; Rs 125.

The Scheduled Areas and Scheduled Tribes Commission (Chairman, Shri U.N. Dhebar, 1961), which examined in depth the problems and prospects of Scheduled Areas and the Scheduled Tribes was categorical in that "one of the worst forms of exploitation to which the tribal people have been, and are still, exposed is through traditional money-lending." The same view was held by the Committee on special Multi-purpose Blocks (Chairman, Dr. Verrier Elwin, 1960) when it opined that "Indebtedness among the tribals is a major cause of their exploitation." Later, the Study Team on Tribal Development Programmes (Chairman, Shri Shilu Ao, 1969) observed that "it is often remarked that the tribals seem to accept indebtedness as an inevitable and inescapable aspect of their existence." It is significant that in 1992, the Eighth Plan (1992-97) Document states that "Limited access to credit for consumption and production purposes has resulted in increased dependence of Scheduled Tribes on money lenders/traders leading to : (a) siphoning of developmental benefits in order to discharge loan liabilities to money lenders and traders; and (b) loss of resource base in the form of land or other assets. An important objective during the Eighth Plan will, therefore, be to provide increased access to credit from banks and cooperative institutions." Against this background the relevance of the book under review, for tribal development requires no testimony. It has aptly been brought out by the authors that "Among many problems, indebtedness is considered as one of the major problems of the tribal people all over the country.... Indebtedness in India in reality is a crystalized form of tribals' poverty, misery, penury, wretchedness and squalor and naked starvation of the deprived class."

The Book has four Chapters, (1) Tribal Life and State Policy; (2) Land and People, (3) Tribal Indebtedness, and (4) Conclusions and Suggestions, in addition to Appendices and an exhaustive bibiliography. The publication contains the results of a comperative study of the problem of indebtedness among four tribal communities, vix., Koyas of Khammam and Warangal Districts, Chenchus of Mahboobnagar district and Gonds and Kolams of Adilabad district of Andhra Pradesh. In addition, the social, economic and cultural aspects of the life of the scheduled tribes in the State have also been given. This book is the outcome of a project sponsored by the University Grants Commission. The information/data was collected from the aforesaid four districts of Telangana region. The book has a large number of Tables containing exhaustive data relating to indebtedness amongst the surveyed communities and districts. The Study has revealed that 77.78 per cent of the household are indebted, the average tribal household debt being Rs 1731.32. When this finding is compared to the results of the sample study on Integrated Tribal Development Projects by the Programme Evaluation Organisation of the Planning Commission (1987) the conclusions are obvious. The PEO study which incidentally included Paderu ITDP in Andhra Pradesh, out of the ten ITPDS studied, had brought out that in 1975-76 the sample tribal households had on an average a debt of Rs 419.22 per household but in 1982-83, this debt had increased to Rs 819.79. Many useful suggestions are contained in the work. The utility of the publication would have enhanced if an analysis of the working of the money-lending regulations were also incorporated. It may be recalled that the framers of the Constitution, taking note of the gravity of the problem, made suitable provisions under the Fifth Schedule of the Constitution. The Regulation making power of the Governors include those "to regulate the carrying on of the business as money-lender by persons who lend money to members of the Scheduled Tribes in such area." In Andhra Pradesh there are three regulations, i.e. (i) The Andhra Pradesh Scheduled Areas money-lenders Regulation, 1960, extended to Telengaga region in 1963; (ii) The Andhra Pradesh (Scheduled Tribes) Debt Relief Regulation, 1960, extended o Telengana Region in 1963 and (iii) the Agency Debt Bondage Abolition Regulation, 1964.

3. The book will be of immense value to administrators, planners, and others concerned with tribal development, especially because the subject has high priority in the agenda for planned development of the States and the Union Territories. □

Dr. P.K.S. Menon

INTEGRATED DEVELOPMENT PLAN FOR INDIA : GOAL, TOOLS AND STRATEGIES : by Shanti Swarup Gupta; Concept Publishing Company, New Delhi-110059; PP 234; Rs. 300.

The Increasing political, economic and social upheavals in the country have become a matter of great concern to the elite. To do away from all such maladies like communal riots, terrorism, desire to secede, uneven distribution of wealth, hypocracy, disrespect for our elders, the author, who also happens to be the Vice-Chancellor of Agra University, has suggested searching of a common goal, both for individual and the society.

"A nation has a past, a present and a future" and "they are all interdependently integrated", says Dr Gupta in his preface to the book. In India, he says "Dharma had even been given a great importance" which "means nature...also means law, justice, equity, fairplay and welfare". It provided guidance to regulate all facets of life and to ensure the fulfilment of one's goal which, the author calls "anand", permanent happniess. What does anand means ? How it integrated an individual with society, the world and its various segments, fall in one composite whole in such a goal. The book discusses these in detail.

The book is divided into three parts : the goal, the tools, and the strategies. The author starts with the presumption that "man's life is an integrated whole. He examines the meaning or welfare in various disciplines, e.g. Political Science, Economics and Psychology, illustrating them from India's past.

For the betterment of society, Indian seers have evolved a number of values or principles which vary from time to time. Chapter 3 is devoted to the study of some important values. This part is supplemented with an appendix detailing the powers of Yagya as experienced by Principal Har Prasad Sharma as well as the dietary allowance for Indians as recommended by our seers. Part 2 of the book lists physical, intellectual, social and spiritual developments as well as love for the country, the world and the universe as tools for formal education and the development of physical efficiency, work culture, patriotism and moral fibre for mass media. Part 3 examines the strategies to be undertaken from the point of view of social, political and economic angles. Comprehensive bibliography and index appended to the book should make it a further useful study.

M.L. Ahuja

HOUSING THE POOR IN THIRD WORLD CITIES : By Kamlesh Misra ; Concept Publishing Company, New Delhi ; PP 159; Rs. 200.

Urban explosion and its consequences are quite well known fact all over the world. In fact, the problem has acquired serious proportions in the developing countries where the rural millions who migrated to large cities in search of work have remained shelterless for decades. As a consequence, slums and squatter settlements have now become the hall marks of the Third World cities with their concomitant social and economic problems like increasing urban poverty, concentration of modern economic activities in large cities forcing the rural population to emigrate; increasing pressure on urban services and infrastructure, and environmental degradation. However, from 1950s Governments in developing countries have been struggling with these problems and during the 1980s, most of them began to recognise the legitimate role of slums and squatter settlements in urban development. At this stage, the social and economic functions of squatter settlements were felt to be better known and upgrading was seen as a viable solution to urban service deficiencies, and shelter problems.

The present volume under review mainly centres on the choice behaviour of the people for housing and its implications for urban housing policies. The study seeks to explain how households, given a set of socio-economic characteristics faced with different types of housing, will choose a certain type of dwelling to live in. It tries to indetify those factors that go into this decision making process.

The objectives with which the book was ventured are as follows : (i) to indentify in a detailed manner the relative importance of the determinants of housing choice decisions in a developing country; (ii) to indentify variation in housing choice by different household class; (iii) to indentify the differences in the importance of the determinants of housing choice between developed and developing countries, through comparison of existing research, (iv) to suggest policies for improving the housing conditions in Rio de Janeiro and (v) to indicate the relevance of the study to other developing countries like India.

The author has succeeded in using the principle of utility maximisation in the study of housing choice analysis, after surveying the available literature and considering their theoretical postions. The book is based on empirical study of public behaviour and response with respect to size, quality and environment of housing in Rio de Janeiro (Brazil). It is a rich data-based study with an additional chapter, jointly written with Dr. Suresh Misra, on India. This makes the study quite pertinent to the resolution of housing problems of the evergrowing megacities of south and South-East Asia.

Notwithstanding some typological mistakes here and there, the book is an important and timely contribution to the resolution of housing problems in Third World Countries like India. It may be useful to students, planners, policy-makers and researchers alike who are interested in the study of shelter provision in Third World cities.

Dr M C. Paul

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Global Action Against Gender Discrimination

Dr Najma Heptulla

LADIES first, so goes the adage. However, this nicety has more or less been a matter of social courtesy, limited perhaps to the higher strata of society. Despite their contributions in various fields, very little has been done or given to encourage women to emerge from the stereo-typed role assigned to them in the society.

While disparities between women and men in public life and leadership have narrowed, the former are still relegated to play a minor role in high level political and economic decision-making in most countries

Women across the world have, after years of struggle, been able to achieve the right to vote. They now make up more than half of most electorates, and many more women work in the public sector than ever before. Is it not surprising and disturbing that despite all their qualities and capabilities women rarely achieve elective office or have equal access to political careers They are blocked from top positions in trade unions, political parties, government, interest associations and business.

The triumphant march of democracy in all parts of the globe has aroused the collective conscience of the people to shed regimentation and unleash forces that have a liberating influence in society, polity and economy. It is this anchoring of modern day life on democracy and the increasing exertion for equal rights for both man and woman that have paved the way for according top priority to women's issues in the global agenda.

Despite the pressures of society and systems women have, in different periods of our history, emerged to the forefront and proved their mettle. They have done and are still doing extraordinary things. Queen Victoria of England, Margaret Thatcher, Zenobia, the valiant ruler of Palmyra, Razia Sultan and Rani Laxmi Bai of Jhansi to our late Prime Minister Indira Gandhi are but a few names in the galaxy of women leaders who have left an indelible mark on the pages of world history. In India itself, history, literature, religion and politics are replete with examples of women who have inspired others.

The fact remains that despite being denied their due rights in the society, women have formed the bedrock of stability In today's world as in the past woman forms the cohesive factor in a society affected by ethnic, political, economical and religious pulls and pressures. A woman's feeling of sacrifice and perseverance are unparalleled and so are her attributes as a friend and a guide. None other than the great poet philosopher Khalil Gibran pays tribute to the women in the following words "Women opened the windows of my eyes and the doors of my spirit. Had it not been for the woman-mother, the woman-sister and the woman-friend, I would have been sleeping among those who seek the tranquility of the world with their snoring."

However women, constituting half of the world population and contributing to two-third of human activity, have remained relegated to the secondary status as far as the enjoyment of their rights are concerned. The oppressive conditions within which they grow up, the countervailing forces they confront and the subjective perceptions they nurture do not induce them to play a meaningful role in the society. This attitude is indeed a restricting factor in the individual growth. A French writer, Simone De Beauvoir, has said "When an individual is kept in a situation of inferiority, the fact is that he does become inferior." This tendency has to be negated and at times reversed to conjure up a better vision for the fair sex.

India's Efforts

India has made gigantic efforts to herald a better tomorrow for women. Nationalism fashioned during the struggle for Independence was a bold assertion for change, the change which encompassed both the political and social emancipation. Unlike the aggressive and imperalistic nationalism of some of the nations at the advent of industrial revolution, the Indian nationalism was a radical departure in as much as it attempted to free the society, polity and economy from subjugation. It never tried to subjugate others but launched an arduous struggle to liberate India and supported the struggle for freedom of other subjugated people.

This combative action to free oneself from subjugation also encapsulated, among other things, the emancipation of women from the traditional and hidebound cultural mores. The struggle for Independence witnessed the heroic fight of women

against injustice. The mesmerizing call of the Father of Nation Mahatma Gandhi to struggle non-violently against the British domination opened a new chapter in Indian history in which women at a mass level relinquished their domestic chores and joined the large stream of Satyagrahis. Gandhiji declared eloquently "I am uncompromising in the matter of women's rights. In my opinion she should labour under no legal disability not suffered by man. I should treat the daughters and sons on a footing of perfect equality".

The Constitution of India guranteed Fundamental Rights and the right to vote without any bar on account of sex. This indeed is a silent revolution of sorts. This, however, was not the case in many of the technologically advanced countries where rights of women have been obtained after violent and fierce struggles. In India rights of women were accorded as a matter of course. This indeed is a tribute to our historic genius that always held women's dignity in high esteem.

The entire national leadership, irrespective of its political affiliation has affirmed to the crucial idea of integrating women with any plan of action for national development, particularly the national leadership under the guidance of Jawaharlal Nehru, the first Prime Minister of free India. He left no stone unturned to espouse the cause of women and is on record saying "I think if anybody can truly represent the spirit of India, the women can do it and not the men. I have faith in them. I am not afraid to allow them freedom to grow." True to his continuing commitment to grant freedom to women, he was instrumental in creating conditions for the introduction of the Hindu Code Bill which has been aptly described as the 'Charter of Equality for Women'.

Continued Efforts

The revolutionary renewal of commitment to the uplift of women by our Late Prime Minister Indira Gandhi was reflected in the bold steps she took to elevate their status. She once remarked "While the world is facing a crisis of civilisation, it is too vast to ignore the talents and capabilities of half the population who have distinctive contribution to make". She was the prime mover in setting up a Committee on the Status of Women. This Committee, after extensive deliberations, came out with a monumental report with significant recommendations which opened up new avenues wherein a lot of positive actions could be taken for women through legislative intervention.

This trend continued to gather momentum in the subsequent years, wherein under the dynamic and charismatic leadership of Late Prime Minister Rajiv Gandhi, new attempts were made to strengthen the cause of Indian women.

Finally, for the first time in the history of India a separate Department on women was setup by the Government. It provided new and special impetus to carry forward the unfinished social revolution that had the potentiality of making women partners in progress and protagonists of peace, development and equality.

A historic and path breaking step was taken by India recently in consonance with the recommendations of the U.N. Committee on the status of women. A National Commission on Women was set up by an Act of Parliament to prevent, among other things, discrimination against women and redress their grievances.

India continues to accord overwhelming priority and importance to issues related to women in the national agenda. For example, a women's component has been added in the Five Year Plans. Women parliamentarians of India have very actively demanded on the floor of the House to take into account the domestic activities of women while calculating the G.D.P. or G.N.P. This would give a proper understanding of the substantial contribution of women to the national development. Once women's efforts are recognised as an input to the totality of the grand national endeavour it would be possible to allocate more resources for their betterment. In this context, it is indeed the bounden duty of women parliamentarians to undertake the daunting task of mobilising public opinion to their favour.

The Inter-Parliamentary Union and specially the Meeting of Women Parliamentarians by its manifold activities, have sensitised the world public opinion and Parliaments of member-countries to undertake legislation for amelioration of women. The impressive list of objectives, role and functions of the Meeting of Women Parliamentarians are oriented to associate more and more women parliamentarians in the activities of the IPU.

Preventing Violence

In this year's agenda figures the United Nations proposed Universal Declaration on Violence against Women. Violence against women has been increasing outside and inside the family. It is through this instrumentality of violence that the subjugation of women is perpetrated and they are terrorised not to assert their rights. This serious issue needs to be tackled by concerted action both at the national and international levels.

One of the major objectives of the IPU is to ensure the involvement of women in political life. It was due to the persistent efforts and dynamic action of women parliamentarians that the IPU urged in 1958 the parliaments of countries where women were not ensured political rights to take suitable action to remove this disparity. Another step

(Contd. on page 8)

Child Care In India: Emerging Challenges

Dr. C. Gopalan

THE quality of Human Resources of any country is largely determined by the quality of its Child Development Services. The children of Today are the Generation of Tomorrow To be sure, there has been some improvement in the state of health of India's' children, as reflected by modest reductions in infant and child mortality rates, and declines in the ıncidence of 'severe' malnutrition in :hildren in recent years. However, he vast bulk of India's children :ontinue to be in a substandard state)f health and nutrition These are the :hildren who may "survive" but who vill grow into the stunted adults of ommorow, with varying degrees of mpairment of physical stamina and ıroductivity

Recent inputs into child develop- ıent programmes have not been nimpressive. The country-wide In- :grated Child Development Services [CDS), the massive Tamil Nadu Ioon-Meal Programme, the Tamil Iadu Integrated Nutrition Project, nd the more recent national drive ›r Universal Immunization are eartening examples of the growing :cognition on the part of our lanners that promotion of child :velopment must be a central bjective of any meaningful national :velopmental policy. The Health frastructure in the country, with 'er 2000 Primary Health Centres, 30,000 Sub-Centres, 2,000 Community Health Centres, over 5 lakh 'ained Birth Attendants and 4 lakh Community Health Guides—is by means unimpressive either (at ıst on paper). The fact that despite :se impressive investments, the ıntry is still far from its goals in the field of child health, must point to either some basic flaws in our strategies or to serious shortcomings in programme implementation. Apparently while we have a multiplicity of overlapping uncoordinated programmes, these are not born out of any Grand Design, or a coherent overarching National Child Development Policy

We many broadly recognise four phases of child growth:

I Intrauterine phase and early infancy (conception to 6 months after birth)

II Late infancy and early childhood (6 months to 5 years)

III (Primary) School age (5-12 years)

IV. Adolescence (12-18 years)

Child growth/development, is a continuum, Orderly child development will demand critical inputs into each of the above phases of child growth. It is necessary to emphasise this because in the past, depending on the "fashion of the moment", near-exclusive emphasis had been laid on one phase or the other, to the relative neglect of other phases—the adolescence phase having generally suffered near-total neglect. Even within a given phase, narrow vertical programmes with isolated targets were frequently pushed to the detriment of integrated child development

The objective of a meaningful Child Development Policy must be the progressive removal of all environmental constraints on child growth and development which currently inhibit the full expression of the genetic developmental potential of our children. This implies that we must strive for optimal "child health and nutrition", and not settle for just "child survival"; for "good motherhood" and not for just a "safe" one! The inputs needed for averting deaths are far less than those needed for promotion of health and nutrition. A truly successful Child Development Policy in a developing country like ours has to be reflected in a significant, 'secular trend' in the growth of our children, with children of each generation becoming taller and healthier than those of the preceding, till a plateau-phase representing the attainment of full expression of the genetic potential for growth is finally reached This is the child development model (of an ascending spiral) that Japan had successfully pursued As far as India is concerned, no significant secular trend was still discernible at least among the poor communities, till almost 1990, (Table-1) except possibly in Kerala.

Challenges

We may now briefly consider the unmet challenges with respect to child health care in the four phases of child growth mentioned earlier.

Intrauterine Phase Early Infancy: While the role of the mother is important in all phases of child growth and development, it is particularly so in this phase which corresponds to the period of the mother's pregnancy and lactation. The two major requisites for optimal child development in this phase are:

(I) Maternal Attributes:

(a) Physical State.

(b) Diet and nutritional status.

(c) Motivation and competence for effective utilization of resources available for her health care.

(II) The quality and outreach of antenatal care service.

The first of these requisites is at least as important as, indeed even more important than, the second. I will revert to this point later. We may consider the second requisite first. Table 2 from a recent report of the ICMR Task Force goes to show the present sad state of the quality and outreach of our Maternal and Child Health Care. The table refers to the situation in PHCs; the situation in the sub-centres is far worse

The Ministry of Health has now come up with a blue-print for a "child survival and safe motherhood programme". With commendable frankness the report announcing this programme carries the following admissions:

"Though basic maternal and child health care was to be an integral part of the services provided by sub-centres and PHCs, this area remained neglected due to great emphasis on family planning, particularly sterilisation, and the simultaneous work load of vertical programmes such as tuberculosis; malaria, leprosy and others. Also the health workers at sub-centre level were not supported with adequate drugs and supplies to take care of the common problems of mothers and children, nor with requisite training. Furthermore, services were not available for the care of women and children at risk. The major weakness in the delivery of health services is its management logistics and materials management, communication, training supervision and an effective information system for "decision making".

This "diagnosis", however, good as far as it goes, is not a complete one. Apart from the deficiencies recognised by the Health Ministry, the major factor responsible for the present poor quality of health care is the total lack of accountability in the system of health care delivery. Such accountability can only be ensured when the community becomes an informed, vigilant and empowered participant in the health care system. We will revert to this aspect later.

The important point to note however is that even if today we had an efficient antenatal health care system purged of its present flaws, we will still not be able to achieve a satisfactory level of child development, given the enormous disadvantages and disabilities that women labour under even before they embark on pregnancy Our antenatal health care system which starts its operations only after women are already half way through their pregnancies, is designed essentially for women who are in a reasonably normal state of health and nutrition before the onset of pregnancy. It is wholly inadequate for the majority of women of our poor communities who are already undernourished and anaemic even before they embark on pregnancy. Under the prevailing circumstances, the battle for "safe motherhood" should not wait for the onset of pregnancy. It should indeed start much earlier when the girl is still in her early adolescence. The "maternal attributes" listed earlier as an essential requisite for successful pregnancy and lactation cannot be promoted by antenatal health care operations of the present conventional type, confined as they are to the latter half of pregnancy and lactation. What we sorely need are imaginative programmes for equipping adolescent girls for good motherhood and productive citizenship, well before they are "trapped" into marriage and maternity. It is our total neglect of the care of the adolescent that has been responsible for our poor performance in the fields of maternal/child health and family planning.

Adolescent Phase

We will now adduce some data which will serve to highlight the importance of this phases.

Mother's Physical State: On the basis of extensive epidemiological data, there is now general consensus that women with body weights less than 38 Kg at the commencement of pregnancy and with heights less than 145 cms are to be considered as being "at risk" during pregnancy. These are the women likely to have complications during pregnancy or at delivery; they are also the women who are more likely to deliver low birth weight babies who in turn are at risk of neonatal mortality and whose growth and development are usually below par

On the basis of data gathered by the National Nutrition Monitoring Bureau it was earlier estimated 15% to 29% of Indian women between 20-30 years of age in 10 States had body weights less than 38 Kgs, and 12% to 25%, heights less than 145 cms. Thus a considerable proportion of women in the reproductive ages in our country, because of chronic ill-health and under nutrition in their childhood and adolescence are of sub-standard stature and body build and are thus obstetric risks. Antenatal care confined to the late stages of pregnancy can certainly not correct this situation.

Indeed the figures quoted above which pertain to women above 20 years of age somewhat underestimate the magnitude of the risks that our women now face. The average age of girls at marriage in the country as a whole according to the Registrar General's data of 1981 was 16.7 years Average figures could be misleading In the problem States of Bihar, Rajasthan and Madhya Pradesh, the mean age of girls at

Table 1

Heights of 7 + year old boy

Country	1955	1988
Japan*	116.0 (1957)	122.3 (7 years)
India**	113.3	113.0 (1988-90)

Source: * Tanner J M et al, Annals of Human Biology, 1982, 9(5), 411-423
* Recent Trends in Health Statistics in Southeast Asia, SEAMIC Publication no 61 /1991
** ICMR Technical Series No 18, 1984
** NNMB, Report of Repeat Surveys 1988-90, NIN, ICMR, 1991

Table 2

Quality of Maternal and Child Health Care

	Numbers
PHCS surveyed	398
Registration of pregnancies in the area	
>80%	51 (13%)
< 40%	195 (49%)
no registration	45 (15%)
Tetanus Toxiod	
> 60% coverage	61 (15%)
Iron folate	
> 60% coverage	67 (17%)

Source ICMR Task Force Study, 1991, (Reference 2)

Table 3

Heights and Weights of Rural Girls

Age (Years)	Height (cm)	Weight (Kg)
14	145.9	35.1
18	150.9	41.9

Source NNMB, Report for the year 1974-79, National Institute of Nutrition, Hyderabad, 1980

marriage is well below the national average. A recent ICMR study showed that the average age at marriage of rural girls in 6 States where the study was carried out was 13.8 years and their age at consummation of marriage 15.3 years

Adolescence is an important phase of child growth and development. Adolescent growth spurt accounts for a substantial increase in body weights and heights. Adolescence is the period when there is considerable accretion of calcium in the bones; a good part of skeletal development (including pelvic development) takes place during this period. A girl of 15 or 16 years is still a child; she enters adulthood only after she crosses 18 years. Growth is complete only between 18 and 20 years.

Table 3 indicate the significant increases in heights and weights that take place between 14 and 18 years in the average Indian rural girl.

It is thus obvious that a good part of pregnancies in our country today are **teen-age** pregnancies. Indeed teen-age pregnancy appears to be the rule rather than the exception. We witness the sad spectacle of millions of "children" (girls of 14 to 18 years) compelled to engage in child-bearing and child-rearing even before they have had a chance to complete their own physical growth and development and attain adulthood. This is "Child labour" at its worst—in more senses than one. It is "labour" which carries far greater risks than some of the other forms of child labour over which there is public outcry □

(To be continued in the next issue)

(Contd. from page 5)

in the same direction was the declaration of the 'Decade for Women' by the United Nations in 1975, and launching of a programme of action to ensure that women realise their national rights.

The energetic influence of women parliamentarians has resulted in conduct of studies on participation of women in political life. The cross-cultural and cross-national studies are indeed a treasure of information on the neglected area of women's participation in politics.

The persistence of zeal and enthusiasm among women parliamentarians and their drive to understand the deeper ramification of women's role in society and polity led the IPU to organise a symposium in 1989 on the question of women in politics. It was an unmatched debate among 150 men and women parliamentarians from all parts of the globe. Again, because of immense initiative of the women parliamentarians, a monumental work on 'Women and Political Power' has been published by the IPU in 1992.

Women have long been leader in the community and at the grass roots and they are strong advocates for environmental protection and peace. Many environmental leaders are women, yet few are recognised. They have participated in building awareness on environmental issues, educated children, protested against dumping of poisonous wastes and pesticides which cause hazards for people and environment.

The winds of geo-political changes sweeping across the globe have also brought in their wake conflict, misery and starvation. Also worrying is the fact that more and more casualties from these conflicts are civilians—out of which a majority of victims are women and children Rather than merely be passive victims, women have been leaders and mainstays of non-governmental peace movements. But as with environmental leaders, few women have been recognised for their contributions to peace.

While the advent of women in the political sphere and their effective participation in the governance of polity and society augurs well for the humanity, a lot still remains to be done. □

Education Of The Girl Child

S. Nayana Tara

THE South Asian Association for Regional Cooperation (SAARC) had declared 1990 as the year of the girl child. A recent SAARC Workshop highlighted the issue and developed some country plans of action. However, innovative programmes for the education of girl children are lacking. ESCAP has taken initiatives in reorienting the development process by using Human Resource Development as a core integrating concept in overall development planning and policy. The Jakarta plan of action on human resource development in ESCAP region adopted by the Commission in 1988 emphasises that "Education is an essential foundation for Human Resource Development". The study in the ESCAP region has shown that illiteracy is invariably associated with poverty, low productivity, deprivation, malnutrition, high mortality rate, high population growth rate and with all aspects of underdevelopment. The findings also show that there is a strong correlation between female literacy rates and life expectancy

Today's girl is tomorrow's woman. Historically the women of this region were subjected to various kinds of deprivation and discrimination. The areas of discrimination include health, education and socio-economic life This has manifested in different forms like low socio-economic status, high child and maternal mortality, malnutrition, less access to health services and general imbalance in enrolments in the field of education. The situation is worse in the rural areas as compared to the urban areas.

Women in this region have strongly lagged behind in the field of education. The general literacy rate of women as compared to men is quite low in most of these countries, India (57:29), Nepal (39:12) and Pakistan (40:19). There are several constraints restricting education of the girl child: structural, organizational, attitudinal, poverty and society's perception of a girl child's role in the family. The statistics provided by the Ministry of HRD with regard to growth of elementary education, indicate that the gap between boys and girls education has continued to grow. In absolute numbers, we have approximately 33.8 million girls in the 6 to 14 age group still to be brought to school. Two out of every three unenroled children are girls

Therefore, it is necessary that any society that aims at social justice, or any policy that seeks to achieve equality of educational opportunity, attention has to be focussed on *bringing the girl child into the fold of education.*

Research shows that education has a positive effect on womens domestic lives. The survival, health and scholastic performance of children have been clearly linked to the level of mother's education in a number of studies Research from Nigeria clearly indicates that one of the strongest predictors of a child's survival beyond its first year is its mother's level of education. A study of parental education influences on reading achievement in Moroc found that mother's literacy was o of the strongest predictors of childre reading achievement. Evidence shown by the study by Elizebeth M King takes a step further. It show that when schools open doors wid to girls and women in particular, t benefits multiply The more educat mother raises a healthier family, s can improve hygiene and nutriti practices.

Table 1

Female Literacy and Life Expectancy

Region	Per cent	Ye
South Asia	33 7	5
South East Asia	72 1	6
Developed	99 3	7

Source: Social Development Newsletter Uni Nations Economic and Social Commissio for Asia and the Pacific, July 1989, Nos 17 18, p 3

Quality Of Life

I would like to start with t premise that girls education is investment for national developme The community is beginning realise that women's levels of litera and basic education have importa consequences for the success development programmes and pr jects. The effectiveness of projects increase health service utilization i community, agricultural productio child survival and nutritional stat are affected, in part, by the level schooling attained by women. Mo educated women are more efficie users of contraceptives, agricultu innovations, and health services, y

in the poorest areas of the world many girls do not enter school, or even if they do fail to stay long enough to gain any significant benefit from schooling. This premise is being tested and a lot of research is being carried out in several countries, especially developing ones.

Literacy is intimately linked not only with infant mortality and life expectancy, but also with economic growth. Primary education, especially of girls, is the single most important determinant of family health

With rapid technological change, the challenge to education is greater than ever. Experiences have shown that adult literacy campaign will also fail unless they integrate reading and writing skills into the context of day to day community life, making the learning process relevant to the learners within their own community. That women can support families is becoming increasingly evident as more become heads of households and enter the labour force in search of paid work Woman's education makes her a wage earner and thus improves the economic status of the family. Many countries are trying to increase girls education. New approaches are being explored, from setting up of a female teachers training schools in rural areas in Tanzania, to educating girls through non-formal education in India, to providing scholarships to girls not only in India but also in Guatemala and Bangladesh. Much of the knowledge guiding these efforts comes from experience gained in hundreds of education projects started by Governments, donor-agencies and NGOs. Policy makers need to find the right mix of actions in each case to change how families think about female schooling and to alter their attitude to female education.

Good Results

A World Bank study of about 200 countries shows that nations that have invested heavily in female primary education in the past, benefit through higher economic productivity, lower infant and maternal mortality, longer life expectancy for both men and women and lower fertility rates, than countries that have not achieved as high education levels for women.

A study of the productivity of men and women farmers in sub-Saharan Africa, for example, found the gain in productivity from education to be larger for women than men. As women gain more access to better employment opportunities, their families benefit through improved consumption Finally, in addition to the socio-economic benefits for women and their families, education empowers women to exercise their rights and responsibilities as citizens of a society and enables them to make more efficient choices

Within the individual countries, there are also strong associations between women's education and fertility levels and family planning use. As per the demographic and health survey programme for the World Conference on 'Education For All' Bangkok, 1990, the findings are interesting. For example in Togo, at current fertility rates, women with no formal education will have an average of nearly seven births during their reproductive lives while women with primary education will have fewer than six births Women with secondary education will have fewer than five births. In Morocco, women with secondary or higher education will have slightly more than two births compared with more than five births, among women with no education. In Tunisia, Morocco, Togo, Senegal and Liberia, family planning use increases with the level of women's education the educational differentials are particularly striking in Guatemala where the user rate is five times greater among women with secondary or higher education than among women with no education. The joint study by the Office of Education and Office of Women in Development, and US Agency for International Development in February 1990, has found that women's schooling and literacy have been empirically found to have an important impact on overall reduction in fertility. Their estimate indicates that an increase in the female gross primary enrolment rate from 20 to 70 per cent, accompanied by proportional growth in the female secondary enrolment rate and a moderate level of governmental support for family planning, can be expected to result in a reduction in the total fertility rate by about 0.5 births per woman 20 years later.

If family planning support efforts were doubled, the same increase in gross enrolment rates (20-70%) would result in a fertility reduction of one birth per woman. Such effects may be explained by female education role in improving women's acceptance and understanding of birth control methods, reducing infant mortality (a potential motivation for high fertility), and producing an attitudinal shift towards reduced family size. Numerous other studies by Cochrane, O'Hara, Cleland and Van Ginneken, Barrera and Diamond are quoted in Elo IRMA T, 1992. During the years 1989-90 studies on infant and child mortality conducted in developing countries show a univesal, positive association between maternal education and child survival, a relation which has persisted in many societies even when the household's socio-economic status has been held constant. As a result the study of the pathways through which female schooling exercises its positive leverage has become an increasing area of interest to researchers in recent years. It has been suggested, for example, that educating women alters the traditional balance of power within the family, leading to change in decision-making; that education modifies women's beliefs about dis-

ease, causation and cure and thus influences both domestic child-care practices and the use of modern health-care services. A study by IRMA T. Elo in 1992 on utilisation of maternal health care services in Peru on the role of women's education shows a strong positive association between education and the use of maternal health care services.

Family Planning

One of the studies conducted by the Indian Institute of Management for WHO on the dynamics of contraceptive use in Karnataka State shows that the most significant variables in order of the importance which affect use of contraceptives are (a) women's education (b) Husband's education (c) Age of women and locational background of the women before marriage The most discriminating variables were found to be knowledge of contraceptive methods and women's and husband's education

The health functionaries should advocate new motivational strategies to convince the couples about the advantages of proper spacing of children and allay their fears about the side effects of different methods through proper education, follow up with visits and by improving the availability and improving quality of health services There is a felt need for using effective communication media and strategies for promoting family planning The role that education plays in this regard has been clearly borne out by several studies, some of which have been highlighted here in order to improve the quality of life of people and to improve national productivity

Appropriate programmes are necessary if meaningful education of girls is to be achieved The Bangladesh Rural Advancement Committee (BRAC) has started non-formal education programmes for children and adolescents. Beginning 1984, BRAC established about 3,000 schools with 90,000 students, 70 per cent of whom are girls. Such innovative programmes are needed for girls on a national scale. The factors which could improve enrolment in primary education of girls into schools are good infrastructural facilities of the school, effective teaching-learning process in the school, and employment of female teachers. Providing a creche attached to primary schools will also help female children to attend school regularly by divesting of the responsibility of taking care of younger siblings.

In India several schemes have been launched for bringing the girl children into the fold of education and for their retention. This includes provision of attendance scholarship for girls, free uniforms, text books, construction of quarters for lady teachers, payment of stipends to ladies for teacher training courses, construction of hostels for girls, separate toilets for girls in co-education schools etc. The establishment of Anganwadi as part of the Integrated Child Development Scheme is an important one One of the objectives of this scheme is to relieve the girls of the burden of looking after younger siblings and to help in the formation of the habit of going to school

Innovative Projects

With the assistance of UNICEF a number of experimental and innovative projects in the field of education have been taken up in the past few years in India One of them is Primary Education Curriculum Renewal (PECR) It aims to develop such curricula that are relevant to the child's environment and life style. Another project taken up with UNICEF assistance is Developmental Activities in Community Education and Participation (DACEP). Under this project efforts have been made to develop and test new types of educational needs of pre-school and out of school children, yo[…] girls and women in selected c[…] munities and to increase the part[…] pation of the communities in for[…] and non-formal education syste[…] Two other projects undertaken w[…] UNICEF aid are Children Me[…] Laboratory (CML) and Early Ch[…] hood Education (ECE). Under […] CML Project, simple inexpen[…] modules of educational and en[…] tainment value for children in […] pre-primary group have been de[…] loped. The ECE project envisa[…] training programmes for teac[…] educators and orientation cou[…] for state level resource person[…] besides development of relev[…] entertaining materials and literat[…]

Hence, any society that aims […] social justice, or any policy that se[…] to move towards quality of edu[…] tional opportunity and retention […] to be focussed on bringing girls […] school. If one can succeed […] educating the urban and rural […] population it would automatic[…] push the educational profile upwa[…] and reduce educational dispari[…] not only of gender but of vari[…] ethnic and social groups and m[…] the vision of universalization […] primary education a success. […] would also improve the quality of […] of our masses as well as add to […] economic uplift of our country.

Thus, in sum we can say t[…] educating girls and women is a v[…] factor in national developme[…] Reorienting the educational syst[…] to gear up to providing access to […] children and to retain them wit[…] the fold of the education system is […] mean task. Changes in systems […] large and complex as prim[…] schooling requires a long time […] significant levels of resources […] implementation. High levels of […] tional commitment and sustai[…] funding support from national […] international resources have to […] mobilised. It also needs a high le[…]

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Gender Issue In Development

M.K. Widge

WOMEN in our country constitute 48 per cent of the total ›opulation. Their welfare and deve›pment has been a matter of great oncern Within the overall context f human resource development, it is ecessary to ensure that this large gment of the country's population ets its rightful share out of all the evelopment programmes and it ssumes its rightful role in the ›ciety

The Constitution of India has ade certain provisions to protect e interests of the female population sides, a series of legislations have en enacted from time to time to ovide protection to women against cial discrimination, violence etc. it unfortunately, this section of our ciety, due to many reasons, has not en able to take full advantage of e Constitutional privileges and itutory rights so far. Broadly, the isons are the existing social ucture, discrimination against men, lack of education, poverty, onomic dependancy etc The social titutions, like the family and mmunity, have defined the duties women but failed to recognise ir rights. Traditionally, an ideal man is one who is loyal, faithful, ssive, submissive and self sacrifyg. As a consequence, women ged behind men in all sectors of elopment, whether it is health, cation, nutritional levels or emyment. They are also far behind in basic information and knowledge ut the availability of opportunities, narily due to their continued sibility and pre-occupation with child rearing responsibility and ing of other domestic chores.

Drawing inspiration from the Constitutional safeguards and legislative measures, various programmes were taken up, specially by the social reformers and voluntary organisations for the welfare of the needy women However, a planned approach to provide special thrust to the welfare of women was adopted with the launching of the First Five Year Plan in 1951 It held that "In order that woman may be allowed to fulfil her legitimate role in the family and the community, adequate services need to be promoted for her welfare The position and functions of women differ to a great extent in different communities and, therefore, community welfare agencies will have to work out their programmes and activities according to the specific requirements of the areas in which they work" Since then, a number of programmes have been formulated and implemented, primarily in the field of health, education and employment. Upto the Fourth Plan, the stress was on the provision of curative and ameliorative services Thereafter, the emphasis shifted to the promotion of preventive and developmental programmes In the Eighties, women development was recognised as one of the developmental sectors by including a separate chapter entitled "Women and Development" in the Sixth Plan document As women's development cuts through various sectors of development, a multidisciplinary approach was adopted. The main objective of the developmental effort has been to raise their overall status, economic, social, legal and political so as to bring them into the main stream of national life.

Another significant development was reservation of certain percentage for women under various poverty alleviation schemes, such as IRDP, TRYSEM etc In addition, 27 beneficiary-oriented schemes for women were identified by the Prime Minister's office which are being continuously monitored.

Among the other initiatives taken were the setting up of the Committee on the Status of Women in India, a National Committee on Women, setting up of Department of Women & Child Development at the national level and establishing cells in different Ministeries/Departments to consider Women's issues in the respective sectors Realising the need for long term perspective for the overall development of women, a 'National perspective Plan for Women 1988-2000 A D', has been prepared. A National Commission for Women has been set up with a wide range of functions intended to safeguard the rights of women, to advise on socio-economic development of women and to evaluate progress

Impact

The effort so far made has brought out significant achievements in the general socio-economic situation of women. The infant mortality and morbidity have declined. Expectation of life at birth has increased. Female literacy has improved as the growth rate of girls education at different stages of education shows an upward trend. More women are entering the employment force, including the non-traditional jobs, like engineering, medicine, science and technology etc.

There is more awareness regarding the gender issues. Amendments are being brought from time to time in various related legislations in order to make the laws more effective.

However, despite all these achievements one may see that women are still less endowed than men with health care, education and employment. Moreover, they have been viewed largely as passive beneficiaries of development and anti-poverty programmes. The availability of services, as to who gets what, is closely tied with gender. The gender inequality is build in our customs, traditions, beliefs and practices. One can observe the differential treatment accorded to boys and girls in socialisation process, in the consumption of food, in the extent of utilisation of health services and continuance in school. This is specially true in the lower income groups. The recent advances in biotechnology have led to sex determination tests thereby enabling the abortion of female foetuses. Added to this is the problem of female infanticide. The girl child is exposed to various forms of exploitation and atrocities.

Female literacy, which is an important indicator of development is quite low. It was 39.42 per cent as compared to 63.86 per cent for males according to 1991 census for the population 7 years and above. Similarly, the infant mortality rate stood at 91 which is considered to be high. The sex ratio was 929. Women's participation in the organised sector is also low. In the unorganised sector of employment, in which bulk of women are engaged, they are usually in the low wage paying jobs with hardly any benefits of protective labour legislation.

There are certain gender issues which require attention. The formost requirement is to perceive women as equal partners and participants in development and not just the beneficiaries. They have to be encouraged to take active part in decision making.

Education is an important sphere which needs to be looked into as it is closely related to the opportunities for her upward social and economic mobility, health and nutritional status. The scheme of universalisation of elementary education has to be suitably directed towards higher enrolment and retention of girls in schools. Literacy programmes would also have to be expanded, particularly for women in the age group of 15-35 years who did not have their formal schooling earlier. The new technological advances have also adversely affected women's employment. With the introduction of new technology, the general tendency among employers is to replace women workers by men who are preferred for such jobs, women being sidelined to stereotyped jobs in trades traditionally associated with them. Hence in order to improve employability of women and to raise their occupational status, provision of skill training opportunities assumes vital importance.

A critical input for women's development would be a thrust to the training of personnel. It is desirable to orient and sensitise the administrative machinery at all levels regarding women's needs.

However, all this could be achieved only when there is concerted and collective effort and articulated action regarding women's issues. It is necessary to bring about attitudinal change among the masses regarding womens' status The electronic media in this respect have to play a purposeful role, particulrly in the context of low level of literacy in the country □

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of commitment from our political leaders, bureaucrats, teachers and the community

Several methods need to be adopted to achieve this important objective of girls education. A decentralised management system with effective monitoring and evaluation systems needs to be worked out. Diverse delivery methods needs to be designed to reach girls and women.

Providing low cost infrastructual facilities for schools is necessary and may be achieved with the help of architects who have such experties. There is also a felt need for providing low cost teaching aids to primary schools The teachers and headmasters of schools require training in communication and delivery modes to facilitate the teaching learning process as well as improved management A close coordination with NGOs and Voluntary Organizations would also go a long way in achieving our goal of girls education. The curricula of primary education needs to be closely scrutinised to see whether there is a proper integration of health and nutrition education

Policy framers should keep all these aspects in mind while drawing up the policy framework. The Five Year Plans should reflect the policies and clearly state how the targets are proposed to be met The financial allocations should be maximised for primary education and girl's education in particular. The Planning Commission could sponsor research studies which would help improve various aspects of primary education in general and girls education in particular, and make best use of the findings to streamline primary education. A close coordination between the departments of education, health and other agencies must be promoted. □

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Overdrawing From Nature's Bank

P.K. Bandopadhyay

MAN'S one major pre-occupation n the second half of the current entury has been to reach a higher ocio-economic level without damging the world's fragile environment. Jnfortunately for him the only nodel of development attractive nough today is the one based ssentially on rapid industrialisation. Aotivation to evolve alternative festyles based on smaller consumpon of exhaustible resources or on on-industrial products has not been rong enough to engage world ttention in any major way. Industrial ocieties are competitive and with lobal opening up are becoming still iore competitive Intense competion leads to higher and often nplanned industrialisation, resulting increased pollution and destruction nature

Plato lamented the destruction of il and forests in ancient Greece ickens and Engels wrote eloquently the wretched condition created by e industrial revolution Tagore ade precious experiments in antiniketan on living as integral rt of nature which is different from -existing with it.

World concern about environntal quality over the last few ades has been uniquely widesad and impassioned. The first UN nference on the Human Environnt held in Stockholm in 1972 was culmination of the gathering ironmental concern of the 1960s ide the official conference hall resentatives of the World's vernments adopted a set of lofty iciples for better environment nagement and voted for new ns of world cooperation for a litative improvement of the development process with minimum damage to environment

Outside the hall thousands of environment activists and common men demonstrated their concern for protection of world environment through lobbying and heated debate. This was a clear evidence of what mounting pressure of public opinion and citizens' action can bring about on decision-makers over issues of global public interest. An inflatable whale paraded through the streets to draw public attention to the needless destruction of life forms and the need for preserving bio-diversity. Crippled victims of mercury poisioning from Minamata, Japan, symbolised the dangers of uncontrolled application of technology.

A combination of changes in environment situation particularly in richer countries and changes in people's awareness level account for the new interest of 1960s and 1970 With development of modern communication news about deadly industrial accidents that broke one after the other in quick succession got wide circulation Some feared that air and water pollution were getting out of control.

Dying oceans, declining whale and tiger population, radio active fall-out from nuclear bomb tests, all clearly demonstrated man's uncontrolled greed and indifference to the need for preserving fellow creatures. This also brought home the message of a shared atmosphere, if not exactly of reverence for life. Projections of an exploding world population raised fears that the world would run short of food and resources and that the last vestiges of wilderness would be on the verge of extinction.

After over two decades from the great Stockholm Conference environment degradation today is more acute. World population has in the meantime risen to about 5 billion i.e. an increase of nearly 20%. With more mouths to be fed and a lot more people to be provided a cleaner environment and a better quality of life, the pressure on Governments, both in the developing and in the developed worlds is mounting for according higher priority to environmental issues and for urgent action on them. Naturally, environment has become a global issue with many ramifications. Better environment management for providing safe and potable drinking water, to check global warming and to maintain biodiversity is a hot topic for discussion today at national, regional and global levels And with that comes the question, who pays for making our polluted environment cleaner and safer.

The priority item in our environment agenda is global warming. Scientists predict that in the next century the earth's temperature will be 2.4 degrees higher on an average than what it is today. This is primarily because of increased use of fossil fuel that has the effect of trapping heat in the atmosphere. If the prediction comes true the glaciers and the ice in the polar caps will melt and there will be thermal expansion of sea water which will result in the erosion of low lands and reduction of the available land areas in our planet. Most major cities of the world are located along the coastlines and thus, run the risk of being submerged under water. Furthermore, since global warming will change the mode

of rainfall and wind direction, it will severely affect agriculture and food production.

Bio-diversity

Next comes the question of preserving bio-diversity as it exists today in our planet. Indonesia and Amazon which are close to the Equator and have high temperature and humidity and are full of plants, flowers, animals and insects of which we do not even recognise the existence. It is estimated that there are 10 million different species of flora and fauna throughout the world. Because of reckless destruction of forests for domestic fuel and for commercial gains about 17,000 living species are destroyed annually. This will soon make man's survival difficult in this planet. Because the next century holds great promise for solving the world's food problem and many medical problems through bio-engineering, which for its success depends greately on diversity of living species

Scientists, spiritualists and environment activists strongly feel against human falacy to take the world only for human enjoyment In fact the smallest of the small living and non-living entities in our planet has the same right to life as human beings. Ethical questions apart, man should take enough care to preserve our planet's biological resources in his own interest.

Deserts are now expanding in various parts of the world and it is calculated that an area equivalent to about 9 baseball fields is turned into desert every minute. This will certainly make the global food problem still more acute in the next century. On the upper side, the world population may shoot up to reach 28 billion in 2150, according to a long-range population projection done recently by the UN.

There are other environmental problems of global proportions including the depletion of ozone layer by discharge of chlorofluorocarbons in the atmosphere from condemned refrigerators and cold storages, marine pollution and acid rain. These problems are all caused by human activity and as such are basically different from natural disasters such as earthquake, landslides, floods and volcanic eruptions.

The Rio Earth Summit, held in June 1992 after 20 years from the Stockholm Conference and the biggest ever summit held in the world to discuss some shared human problems, dwelt on all major issues concerning environmental protection and financial obligation of nations to implement the action programme for protecting the environment The summit participated by 178 nations after hectic discussions and hard bargaining for 12 days and nights adopted on June 14, 1993, the 800 page Rio Declaration on Environment, the Magna Carta of human survival.

Opinions differ about the real outcome of the Rio Summit But one thing is clear that the developed countries with their high level of industrialisation and conspicuous consumption contribute much more to environmental degeneration and pollution than what the developing countries do out of poverty and compulsion to use back dated technology or technology which is not environment-friendly.

The summit which strongly aired the poor nations' demand, "the polluter must pay", for cleaning the environment and also that the developed countries should come forward to transfer on easy terms safe technology (like the one for substituting CFC) could not get any clear assurance either of funds (about US $ 125 billion) or of technology. Nor was there any unanimity on preservation of and control over genetic resources in the developing world.

One thing is more than clear by now that each nation will have the primary responsibility to keep its environment clean and safe for its present and future people. The International society can certainly provide valuable guidelines and technology based on latest research findings to those who may want these, but the responsibility to apply those effectively at national level will be that of national government's.

A partinent question for the developing countries with their high level of poverty, inferior technology, and fast growing population is, do they aim at the development pattern and lifestyle of the industrialised nations or try to eolve entirely new ones based on their existing and potential resources, their own socio-cultural ethoes, a lasting nature-man relationship and not on conspicuous consumption and high sensual gratification. After all, can a hi-tech world highly dependent on fast exhausting mineral resources and dying nature last long? Does the modern science provide complete and ready answers to human miseries and sufferings even in hi-tech societies?

The spirit of scietific enquiry and application of science and technology to solving human problems must continue But can there be an ideal combination of science, spiritualism and reverence for life to create a better world based on sustainable development and with a rich cultural content? Is a paradigm shift in all our development efforts possible in the interest of a safer and a happier future?

At the wrap-up for the Rio Earth Summit Prime Minister Narasimha Rao reminded the world what Mahatma Gandhi once said, "our world has enough for each person's need but not for his greed." □

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Environment And Industrialization—Korba: A Case Study

S.C. Lahiry

THE main industries of Bilaspur listrict in M P viz coal, power luminium and explosives are in the 'ublic Sector These are also concentrated in and around Korba-about 16 kms to the north east of Bilaspur t is a fast growing urban town with n area of about 15 sq km The ublic sector industrial undertakings ocated in Korba are South Eastern oalfields (SECL), Bharat Aluminium 'ompany (BALCO), National hermal Power Corporation (NTPC), 3PCO and Madhya Pradesh Elecicity Board (MPEB) Korba was a nall tribal village with sylvan irroundings till the early fifties It is aving a population of 1,24,365 ersons (as per 1991 census) as gainst a population of a little over 00 in the 1951 census The river asdeo flowing from north to south, b-divides the Korba area into two irts. Now Korba has become one of e problem areas-environmentally eaking.

Industrial pollution caused due industrial activities at Korba 'ected the environment adversely ie impact on the environment due industrial operations by the rious industries in Korba is dissed below.

Korba Coalfield

The coal is being extracted now at 9 coal mines by the SECL. The e operating mines together are ducing about 25 million tonnes of coal per year. The open cast mines viz Kusmunda, Gevra, Dipka, Manikpur and Laxman account for over 90 per cent of the coal production from the Korba coal field. However, the mining of coal at Korba is causing concern to the environment around the area The opencast mining leads to air and water pollution as well as land degradation. The major air pollutants are coal, associated rock, overburden soil and dust arising from the blasting, handling and transporting operations of the coal and overburden The vast dumps of latter are the major sources of pollution. The local population suffer chiefly on account of breathing coal dust which is present everywhere around the mining sites. The dust thrown up continuously by the blasting operations has also started affecting the surrounding vegetation. In the opencast mining, operations are continued till the entire quantity of coal is extracted from the seam. As such, voids after extraction of coal, cannot be filled up immediately, and they are visible for months after extraction of coal in the Manikpur, Kusmunda, Gevra areas. The under ground mines release Hydrogen sulphide (H_2S), Sulphur dioxide (SO_2), methane (CH_4) etc in low concentrations which cause health hazard to the miners. Water pollution is another major impact. In Korba, waste water from the operating mines are discharged into the rivers Ahiran, Hasdeo and Denghur nalla. The volume of waste water discharged from these mines has been estimated to be 63 million litres per day containing 8.0 tonnes of suspended solids, (0.825 tonne of coliform with biological oxygen demand (BOD) load of 0.190 tonne). The solid waste generated includes waste rock and debris from underground mining as also the soil and rock in the form of overburden from the opencast mining. Transportation of coal by road in open trucks at Korba causes further air pollution. Coal fires, particularly occur in summer are responsible for the release of combustion products which heat up the atmosphere of the surrounding areas

b) Korba Power Plants

The MPEB had set up two thermal power plants of 100 MW and 440 MW capacity respectively between the fifties and seventies on the eastern side of Korba town. In the eighties, MPEB ėstablished 840 MW capacity thermal power plants on the western side of Korba town. Later, the NTPC has set up a giant super thermal power plant of 2100 MW capacity in the Korba area. Besides, BALCO commissioned a captive thermal power plant of 270 MW capacity in the late eighties. The thermal power plants of Korba have installed pulverised coal fired boilers. Because of the relatively high ash content of the coal, very large

quantities of flyash is released into the atmosphere through chimneys of the boilers. Flyash generated in Korba is estimated to be 20,304 tonnes per day. The primary pollutants associated with coal combustion are suspended particulate matter (SPM), SO_2, H_2S, carbon dioxide (CO_2) and nitrogen-oxides(NOX). The varieties of secondary pollutants include hydro carbon, trace elements and polynuclear compounds. The SPM in the form of flyash has toxic effects. Even, smaller amount of fly ash may reduce the visibility wheras higher amount can cause respiratory stress and diseases. It has been estimated that about 183 tonnes of SO_2 is emitted in the atmosphere everyday in the Korba area. The emission of SO_2 from MPEB power houses has been found to be quite high. The effect of SO_2 combined with smoke increase the risk of respiratory diseases. It also causes suffocation and irritation of eyes. It has been established that the air pollution in Korba, mainly, results from the thermal power plant operations. Besides, air pollution affects the water as the Korba power plants converts the boiler ash into slurry and pump the latter into the dykes where water portion gets drained-off into the river. Here, the ashponds/dykes of MPEB (East), MPEB (West) NTPC X and BCPP discharge their overflow into the river Hasdeo. The volume of waste water geting discharged from power plants is estimated to be 143 million litres per day having 59 tonnes of total suspended solid and 1.52 tonnes of BOD per day. The industrial waste (ie flyash) is dumped into ash ponds/dykes in low lying areas. From here, the overflow water and some accidental unrestricted flow of flyash run into small rivers and *nallas* which ultimately join the river Hasdeo causing pollution. In the downstream, the river Hasdeo collects maximum amount of waste which run through 23 villages between Korba and Champa. The villagers use the river water for all purposes except, perhaps for drinking. Being close to the source of pollution, they are exposed to the harmful effects of pollution.

c) BALCO

It is a Large integrated aluminium plant of one lakh tonne per annum capacity.

While the SPM is contributed at the BALCO plant by the Anode paste plant and steam plant, the oxides of sulphur, carbon and nitrogen are emitted as pollutants by the steam plant. Further, the emission of flourine gas to the atmosphere from gas cleaning plant also takes place. It is estimated that about 169 kgs of flourine gas is emitted by it per day. BALCO discharges waste water into the water body which in turn joins the river Hasdeo amount to 32 million litres per day containing 8 tonnes suspended solids. The accumulation of red mud as solid waste in addition, at the rate of 800-900 tonnes per day, has also posed a serious threat to the enironment as vegetation around the plant is showing signs of damage due to air pollution near red mud pond areas. Also, the wind loaded with red mud fine dust is causing nuisance and human sufferings in addition to poor visibility. This problem becomes more acute during summer months.

d) IBPCO

It is manufacturing 20,000 tonnes of chemical explosives per year. The unit has no stack emission problem. There is also no effluent which gets discharged into the water bodies.

In addition to the above mentioned industrial undertakings, there are about 15 small scale industries located in Korba e.g. lime kilns, chemical units, foundries etc which are, however, causing little or no apreciable pollution problem by themselves.

The Central Pollution Control Board (CPCB), New Delhi in collaboration with Madhya Pradesh Pradushan Niwaran Mandal (MPPNM) conducted a field survey at Korba to assess the pollution load and its impact on the environment. The Survey Report (1990) contained the ambient air quality, Hasdeo river water quality, ground water quality etc. The report observes the presence of the thermo-tolerant bacteria made the Hasdeo river water unsuitable for drinking purposes Ground water samples indicated higher levels of zinc and iron than the prescribed limit, besides, the presence of coliform bacteria impurity of the samples were noticed. First rain water samples at twenty locations showed that the atmosphere was full of air pollutants with high flouride level. The ambient air quality, SO_2 and SPM levels were higher than the prescribed limit at three locations which fall in the residential areas of Korba.

Environmental Planning & Coordination Organisation (EPCO), Government of MP has conducted a study of aquatic flora and fauna at Korba. The EPCO study report (1990) revealed, that an outfall of industrial waste into water bodies had been keeping down the biological species variability and number of species (even upto zero). The sterile stream bottoms and brown water of river, *nalla* as well as Hardeo main stream are mute testimonies of the highly poisonous chemicals which make water unfit for growth and development of flora and fauna. The report added that the discharge of industrial waste had completely destroyed the natural vegetation of the streams which ultimately joins the mainstream of the Hasdeo river. Because of the extreme condition of effluents, the plantonic population, even bacteria fungi died and only few micro organism were obtained.

Summing up, wide scale disfigure -ment of land, loss of vegetation, generation of air borne coal dust and

water pollution have been caused in the Korba coalfield. Thermal power plants using pulverised coal have also been releasing considerable ash into the atmosphere through boiler chimneys. Apart from toxic effect, visibility in the area has been reduced. A pall of dust and smoke hangs constantly over the sky. The disposal of ash in the form of slurry by the power plants in the ash ponds has aggravated land and environmental degradation. Further the industrial waste and overflow drained into the Hasdeo river through other channels pollute the river water which becomes brown. In the absence of suitable outlet, both flyash and red mud accumulated in the ash ponds. dykes and red mud ponds respectively have compounded the dust pollution problems at Korba People at large, have become victims of pollution created by the major industries located in Korba.

Suggestions

In view of the growing need of the population, the industrial progress is necessary. However, indiscriminate degradation of environment in the name of industrial development is unwarranted. A balance has to be made between the industrial progress and environmental degradation which is primarily being caused due to industrial pollution. It is, therefore, essential to contain the industrial pollution to the maximum extent. Looking at the need of the continuation of the pace of industrial growth, specified measures have been suggested below for industries in Korba area.

a) Coal Mining

Existing dust pollution load is quite high at Korba which is primarily due to presence of coal dust. Opencast mining activity is completely open to atmosphere and spreads over a large area. Airborne dust particulate could be dampened by mist spraying at the sources. Gaseous pollution is caused mainfy due to exhaust of internal combustion engines, incipient heating and burning of coal. The reduction of gaseous emission is achieved by limiting earthmoving vehicles within the quarry itself. Frequency of coalfires can be reduced by blanketing the slopes of the coal stacks with overburden. However, afforestation play a significant role to mitigate the problems of air pollution in the coal mines. It needs to be done on the top soil dumps and sides to avoid soil erosion. It is necessary to develop green belts around the mining complexes, preferably, of species with proven tolerance. Growing of plants extensively in the residential colonies is needed. There is a need to review the progress made as given in the environmental management plan on the restoration of environment by a competent high powered group.

b) Thermal Power Plants

Boiler stack height except for NTPC is not adequate to ensure proper diffusion and dispersion of gaseous and particulate pollutants in Korba thermal power plants. The boiler stack height, therefore, in the rest of the power plants should be increased in accordance with the emission regulation of CPCB. In the case of NTPC, high SO_2 emission could be tackled by adoption of desulphurisation process. Dust emission of particulate matter from the boiler stacks would be controlled by installing equipment like dust collectors, Electrostatic Precipitator (ESP), wet scrubbers etc. ESP, fitted in all the power plants should be properly cleaned and maintained for achieving designed efficiency. The ash get airborne when ash pond gets dried up in the presence of strong wind pressure. The drying of ash pond should be averted by maintaining water level of atleast 3 feet over the year. Tree plantation of more than one species should be extensively done in ash ponds. The wet disposal system of flyash should be discouraged more on account of the threat to underground water of contamination of alkali metals containing traces of Arsenic, Flourine, Molybdenum, Selenium and Mercury. As a matter of policy ash pond over flow should be recycled back into the process MPEB, NTPC and BCPP should discontinue the practice of discharging ash pond overflow into the river Hasdeo while recycling of overflow back into the process.

Flyash is generated in significant quantity at Korba. At present there is no regular outlet for utilisation of flyash while utilisation is possible in the areas: (1) manufacture of building materials, (2) road construction and (3) land filling. A mechanised flyash brick making plant should be set up by NTPC as a first step. For promotion on a long term basis power stations should play a catalytic role by involving private parties with provision of infrastructural facilities on concessional terms. Incentives in the form of softloan, S.T. exemption, duty concession should be provided besides ensuring regular off-take of the products by the State Government departments. Flyash can be used in the sub-base of road and in rigid/semi rigid pavements. In this regard state PWD and Rural Development Department should take lead while Thermal power stations should offer flyash free. As landfill, flyash could be utilised extensively in the abandoned pit/quarries in coal mines.

It is suggested that for increasing utilisation of flyash, installation of dryash collection facilities in the power stations is necessary. The investment required for this may be provided under the budget head-Replacement, Renewal and Maintenance scheme of the State Electricity Board. For new thermal power plants, the provision for collection and supply of flyash need to be incorporated and accordingly, project feasibility report be made.

(Contd. on page 20)

Pollution Problems In Inland Fresh Water Ecosystems

D.K. Pandey and S.C. Sharma

WATER is the most important ecological factor present every where and is an essential component for our survival. Water pollution is a major global problem. Today pollution is every body's business, every one creates it and every one is affected by it. The quality of water is of vital concern for mankind, since it is directly linked with human welfare. Without water there would not be life of any kind on the earth. Water is needed for drinking, cooking, washing, bathing, gardening, irrigation and for industries, among all these needs, drinking gets the first priority.

The major sources of water pollution are waste from urban, rural and industrial areas which discharged into natural water bodies.

Fresh water shortage is one of the most serious long-range environmental problems faced by the developing countries. There are several reasons for this, i.e. rapidly increasing population, rising demand of water for agriculture, industries, cities and finally pollutants. Another vital factor is the unequal distribution of water bodies. Aquatic ecosystems are not only important for drinking water, but also for recreational purposes, as well as for receiving waste water.

In nature, water ecosystems have a self regulatory mechanism (homeostasis) for recycling waste material quickly if the amount of waste is small, but when the contamination level exceed its homeostasis capacity, water becomes less useful or harmful for society as water has a limited capacity to absorb and recycle the pollutants. Now a days the balance in aquatic ecosystems is upset by addition of pollution which is manifested in fish kill, offensive taste and odour etc. In India about 80% of

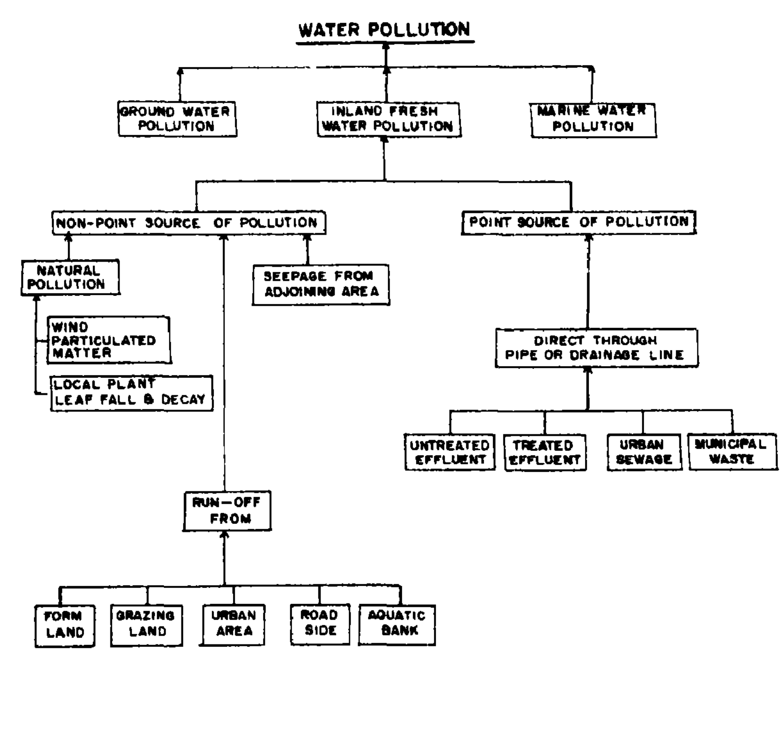


FIG I- POINT AND NON-POINT SOURCE OF WATER POLLUTION

the diseases are water related.

In recent times it has become obvious that the fixed amount of available water must be reused more and more often as the demand for water increases. Such a situation may result in an accumulation of undesirable substances and identifying the source of unwanted or other extraneous material in water is becoming increasingly essential All the potential, major factor affecting water quality should be studied and their effects should be analysed.

Suggestions

To control water pollution of inland fresh water ecosystems, following measures may be implemented for improvement·

(i) **Input control—prevent pollutants from being generated in the first place. This is a more desirable approach from both an ecological and economical viewpoint.**

(ii) Output control—this is an after fact method that attempts to control the pollutant and or its effects after it has been produced.

(iii) The incoming point source of pollution can be reduced by developing proper sewage systems.

(iv) The non-point sources of pollution can be minimized through extensive afforestation.

(v) Controlled animal husbandry and developmental activities, **atleast in the catchment area of aquatic water bodies.**

(vi) **Undesirable activity of people should be restricted.**

(vii) **After primary and secondary treatment using chlorinator unit for removal of harmful bacterial and other organisms in waters before discharge for drinking purposes.**

(viii) Development of proper pollution control legislation.

(ix) Need to introduce proper education and training programme for people. ☐

The authors belong to Forest Research Institute (ICFRE), P O. New Forest, Dehradun

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c) BALCO

In the Alumina plant, the fugitive dust emission could be effectively controlled by providing fogging nozzles and covering wagon tippler area by tin sheets In the crushing section, it is recommended adpotion of bag filter along with ESP In the calciner section similar dust control devices are called for Adoption of fludised bed calcination at BALCO also will not only increase fuel efficiency by 30 per cent but would reduce gaseous emissions

In the smelter plant, BALCO should take more effective steps to improve the hood collection efficiency This could be achieved by proper designing of burners, proper cell cover, regular cleaning of suction and replacing the damaged hood on the periphery of anodes

Regarding industrial waste, bulk and direct utilisation of red mud is possible as a suitable material for road construction Red mud can be used as solidifying loose soils and for improving acidic ones.

d) Role of State PCB

MPPNM ofice at Korba needs to be strengthened adequately, both in terms of infrastructural facilities as well as professional and skilled manpower. It should have on its roll a panel of experts for taking up special studies on the developmental aspects and preservation of the environment at Korba. Besides, regular monitoring of the environment at Korba by a completent group is the need of the hour

e) Health Statistics Data Base

As the existing data-base on the incidence of pollution related diseases is inadequate, there is an urgent need to ensure proper documentation of such diseases in Korba. State Health Directorate should be entrusted with the task of coordinating such activity. Data on ailments due to industrial pollution should be preserved and analysed by a competent authority to initiate preventive actions.

f) Expansion of Industries

Korba region has become an eco-sensitive area. The total environmental burden of SO_2 and SPM have been increasing consistently. As the environment has limited carrying capacity, the future expansion of industries utilising significant quantity of coal needs to be given utmost care. ☐

The author is Dy Adviser, Planning Commission

The views expressed are the author's own

Protecting Environment Everyone's Duty

EARTH is the only planet so far known with an environment, necessary for sustainable life. Land, water, air, plant and animals are the main components of the global environment. Sustainable development is a process of social and economic well being. But to meet this end we should ensure that the demand on the environment does not exceed its carrying capacity for the present as well as future generations.

India, with its geographic, climatic and biological diversity, has a unique environmental heritage. For the people of India, environmental conservation is not a new concept. Historically, the protection of nature and wildlife formed an ardent article of faith, reflected in the daily lives of people and also enshrined in myths, folklore, religion, art and culture. According to the Upanishads "this universe is the creation of supreme power meant for the benefit of all his creations. Each invididual life form must, therefore, learn to enjoy its benefits by forming a part of the system in close relation with other species. Let not any one species encroach upon the other's rights."

Even in modern times, as is evident in the constitutional provisions, environmental legislations and planning objectives, conscious efforts have been made for maintaining environmental security alongwith developmental advances. The national conservation strategy and the policy statement on environment and development are in response to the need for laying down the guidelines that will help to weave environmental consideration into the fabric of national life and development process.

The Challenge

The vast majority of Indians is directly dependent on the natural resources of the country for their basic needs of food, fuel, shelter and fodder for their cattle. The challenge of prevention of erosion and indeed of restoration of India's land resources is intimately related to strategies for the management of land, water and vegetative cover.

A massive programme of Wastelands Development through afforestation and tree planting with peoples' participation was initiated in 1985. The programme attempts to restore, through natural regeneration or appropriate intervention, the forest and tree cover in the country both for ecological security and to meet the fuelwood and fodder needs of rural communities. It also seeks to raise green cover on non-forest and private wastelands in order to reduce the pressure on the forest areas

The role of forest communities in restoring and conserving forests is now being increasingly recognised. The need is to integrate modern knowledge and skills in the area of forestry with the traditional knowledge and experience of the local communities and to evolve more effective strategies for the joint management of forests.

With the constant inflow of municipal wastes and industrial effluents, most of the rivers and water bodies have become polluted. Restoring the water quality of the rivers and other water bodies such as lakes is another important environmental challenge facing India.

A major programme to improve the water quality of the river Ganga has been undertaken and it includes a total of 261 schemes covering interception and diversion of industrial waste and sewage, sewage treatment plants, low-cost sanitation and development of river front facilities including tree plantation on river banks. A National River Action Plan is also being formulated to cover other major rivers of the country.

The threat to the biological diversity of India due to over exploitation and habitat destruction is a major challenge. Realising the fact that many species of animals and plants have become endangered, several initiatives have been taken in India for their convervation.

Today, India has a wide network of 69 National Parks, 392 Sanctuaries and 7 Biosphere Reserves located in different parts of the country. Among the special projects taken up for the protection of threatened species, Project Tiger, has been a phenomenal success. Separate projects

(Contd. on page 28)

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Improved Cookstove Programme

D.K. Mittal

ABOUT 80% of the population in India live in villages. Around 40% of the total energy is consumed in rural areas. Of this 55 to 60% is attributed to the cooking and other applications in domestic sector. Bulk of this energy demand is through non-conventional energy sources, like, firewood, agro based residues and animal wastes.

Inefficient utilisation of biomass fuel, agro and animal wastes for cooking has also resulted in serious health problems. It is imperative that traditional and inefficient chulhas are replaced by more fuel efficient improved cooking devices with a view to conserving fuel wood and forests and also to improve health and hygienic conditions, reduction of drudgery of women and children and improvement in overall quality of life. In this context, National Programme on Improved Chulha assumes considerable importance and relevance.

Objectives

The Improved Chulha Programme aims at the following objectives:

- (i) Fuel conservation;
- (ii) Removal/reduction of smoke from the kitchen;
- (iii) Check on deforestation and environmental upgradation;
- (iv) Reduction in the drudgery of women and children from cooking in smoky kitchens and collection of more fuel;
- (v) Reduction in health hazards;
- (vi) Reduction in cooking time;
- (vii) Employment opportunity to the rural poor.

The Priorities are as follows:

1. **National Level**
   (i) 20 Point Programme.
   (ii) Minimum Needs Programme
2. **State level**
   Component of Rural Development Programme.
3. **Users**
   Priority —For—smoke removal.
   Low Priority —For fuel conservation, as generally fuel available at zero cost

Improved Efficiency/Fuel Conservation:

(i)	Thermal efficiency of traditional chulha	—8 to 12%
(ii)	Thermal efficiency of Improved Chulhas	—20 to 50%
(iii)	Minimum thermal efficiency of Improved Chulhas at the time of inception	—15%
(iv)	(a) Present minimum thermal efficiency of fixed chulhas	—20%
	Present minimum thermal efficiency of portable chulhas	—25%

FUEL SAVINGS AND COST ECONOMICS:

Sl No	Item	Traditional Chulha	Improved Chulha	Remarks/ benefit Per Year
(i)	Capital Cost	Free (made from locally available materials).	Average cost Rs 100/- (including pottery/ceramic liners pipe or metallic parts)	
(ii)	Running cost (Average annual consumption of wood in Kgms)	2000-2500	1000-1500	*1000 kgms of wood

* Considering various factors, actual saving may be assumed at 700 Kgms/family per year of wood or equivalent valued at Rs 400/- approximately

Thus an improved chulha pays back the investment of its cost within three months of the installation This benefit is of recurring nature Apart from monetary benefits there are, other benefits also

Potential And Coverage

Potential: Number of potential households—120 million using chulhas.

Present Coverage: Chulhas installed upto March, 1992—12.50 million (10% of potential households)

All India coverage per thousand—14.91/19.98 total/rural population.

Coverage at the end of 8th Five Year Plan (1992-1997): Proposed coverage during 8th Five Year Plan—18 million.

Total anticipated coverage—30 million (25% of potential households)

Anticipated coverage per thousand—30/40 total/rural population.

Target for 1992-93—1.75 million

Proposed target for 1993-94—2.40 million

Implementation

The programme is targetted to cover beneficiaries in rural, semi urban and urban areas. However, due preference has been given to the beneficiaries belonging to SC/ST categories and those living in hilly areas, areas experiencing serious deforestation problem, North Eastern Region far flung areas, urban slums etc. Community kitchens of hospitals, hostels, military and para military forces, religious and charitable institutions and *dhabas,* hotels etc. are also being covered under the National Programme.

Agencies: (i) State Government Departments, (ii) Non-Conventional Energy Development Agencies, (iii) State Agro Industries Development Corporations, (iv) KVIC, (v) NDDB (vi) Women Organisations like AIWC, (vii) Other NGOs.

Role of self employed workers (engaged purely on contract basis): (i) Actual installation, (ii) Repair & maintenance for one year, (iii) Users education, (iv) Repair of old chulhas.

Training (i) Self Employed Workers, Potters, Technicians, field functionaries, (ii) Exposure/training for officers and field staff of Implementing Agencies.

Financial Assistance/Incentives

The following financial assistance and incentives are provided for various activities of the National Programme:-

(i) *To beneficiaries* (Subsidy on Cost)

Type of Chulha	App Cost	Central Assistance
(a) Fixed	Rs 25/- to Rs 103/-	Approved unit cost minus beneficiary's (minimum contribution of Rs 50) (maximum assistance of Rs 50)
(b) Portable	Rs 75/- to Rs 188/-	50 percent for General Category (maximum assistance (Rs 50) & 75 percent for SC/ST/Hilly Areas (maximum assistance Rs 75)

(ii) To Self Employeed Workes (For installation)

(a) Fixed Chulhas	Rs 10 - per chulha for plain areas — Rs 15/0 per chulha for hilly areas/difficult terrain
(b) Portable Chulhas	— Rs 5/- per chulha

(iii) To Implementing Agencies

(a)	Organisational/Infrastructural support to States/Agencies	Rs 5/- per chulh
(b)	Transport & Handling charges	Rs 4/- per chulh
(c)	For Publicity & Awareness	Rs 2/- per chulh
(d)	For Users Education	Re 1/- per chulh

Incentives

— No industrial licencing required.
— Excise Duty Exemption.
— Exemption on Sales Tax.
— Relief under Income tax Act.
— Soft term loan from financing institutions.

Efficiency

The programme envisages installation of fixed as well as portable models of chulhas depending upon the requirements of the beneficiaries. Whereas fixed models of chulhas are constructed in the kitchens of different households by using locally available material by self employed workers, the portable chulhas are manufactured by small scale units and are distributed to the beneficiaries. The minimum thermal efficiency of over 20% and 25% has been fixed for fixed and portable chulhas respectively as against thermal efficiency of : to 10% of traditional chulhas.

The chulhas are available for domestic, community, institutiona and commercial applications.

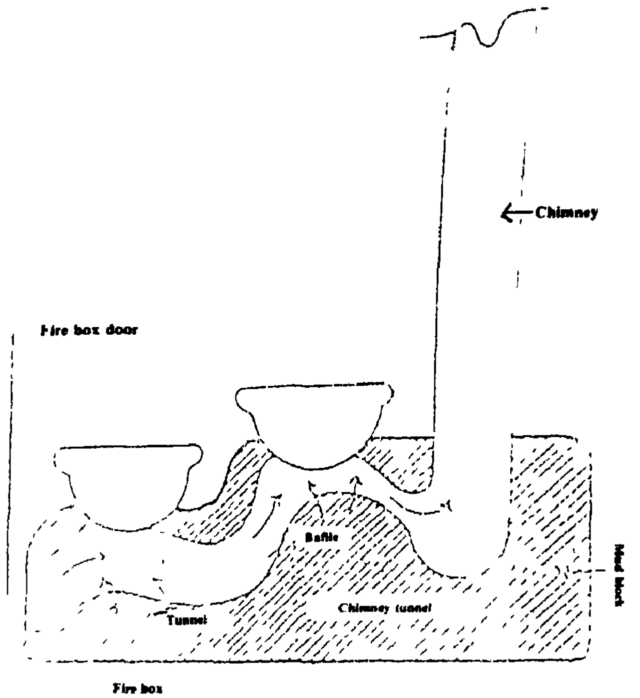
The following options are available for selection of models to th beneficiaries:-

(a) Mud fixed chulhas with o without chimney;
(b) Mud-clad pottery lined, fixe chulha with or without chimney
(c) Portable metallic chulha;
(d) Portable metal-clad-ceramic line chulha; and
(e) Portable chulhas with separat hood chimney system.

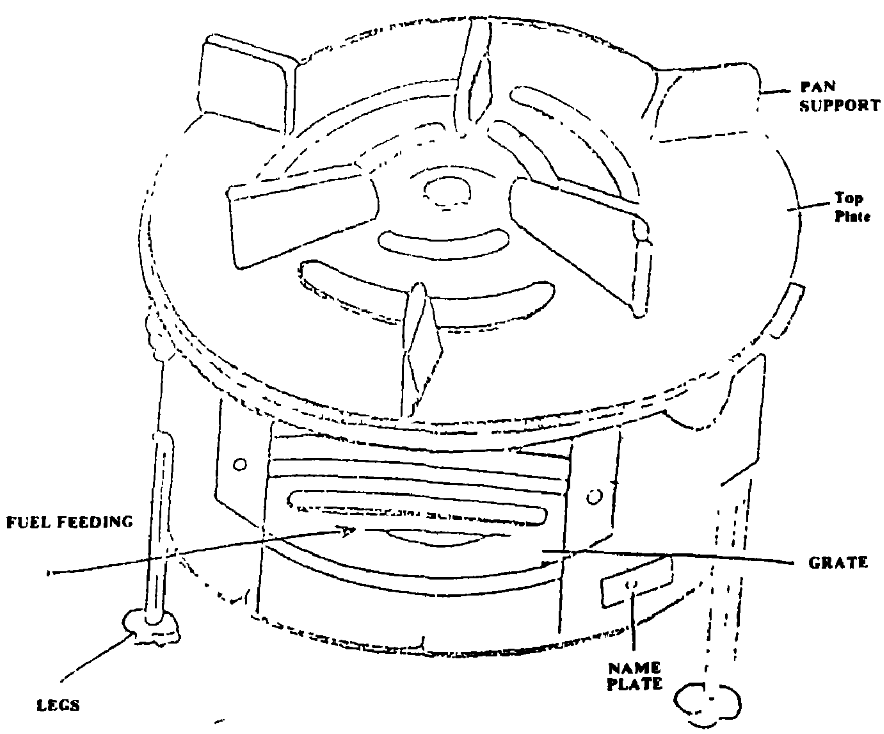
Training Programmes

Various types of training pro grammes are organised under th National Programme for Self Em ployed Workers, potters, villag artisans and various field functionaries The orientation/exposure programme are also being organised for th officers of the Implementing Agencie at the field level. These trainin programmes are being organised b the Technical Backup Units esta

FIXED CHULHA—A SECTION



Improved Chulha Better heat utilisation & removal of smoke



A model of Portable Chulha (with ISI mark)

blished under the National Programme. These programmes are organised in a decnetralised manner at State, Divisional, District and village level. Basic scientific knowledge involved in the chulha technology as well as the awareness aspect of the beneficiaries the evaluation of the programme are covered during the training programmes.

Organisational and Infrastructural support

Broadbased organisational and infrastructural support has been created under the National Programme by the Implementing Agencies at State, District and Block levels for the implementation of the Improved Chulha Programme.

Users' Education, Publicity and Awareness

A mass publicity programme has been undertaken through the electronic media, All India Radio and press publicity at the Central level. The implementing agencies are also taking up the publicity of the programme through the regional centres of Doordarshan, AIR and regional press. User's training programmes, demonstration camps are also organised through Self Employed Workers for imparting user's education and creating awareness among the beneficiaries. Decentralised publicity through posters, audio visual aids and other traditional methods are also undertaken by the Implementing agencies. Training manuals, leaflets and video cassettes of films on chulhas have also been provided to the implementing agencies.

R&D

A network of 20 Technical Backup units has been created under the National Programme for providing technical input in addition to research and development.

- R&D including development of appropriate models according to local needs
- Training to Self Employed Workers, Potters, Village artisans and various field functionaries.
- Demonstration-adoption of villages for demonstration and field trials of various technologies developed.
- Decentralised testing and approval of models.
- Development of high efficient metal clad ceramic lined chulhas (efficiency in the range of 40 to 50%).
- Reduction in cost.

Motivation

Under the Promotional Incentive Scheme, awards of shields and Certificates of Appreciation are given to the States/UTs doing commendable work in the implementation of the programme. The criteria for selection of awards is qualitative achievement in respect of Improved Chulha Programme.

In addition incentive scheme for various level of field functionaries and users have also been introduced by Implementing Nodal Agencies for award of cash prizes and Certificates of Appreciation

Employment Generation

The programme has provided employment opportunities to a large number of self employed workers, potters, rural artisans and technical personnel. It has also created employment opportunity in the small scale industries who are engaged in the manufacture of portable models of chulhas.

Evaluation

An independent evaluation study of the National Programme on Improved Chulha has recently bee[n] carried out by the National Counci[l] of Applied Economic Researc[h] (NCAER).

The salient features of the stud[y] have been—

(i) The all India figures regardin[g] functionality are as below:-

(ii) (a) Functionality of chulhas [is] going up year after year du[e] to technological improv[e]ment.

(b) The functionality in respe[ct] of old chulhas is less [as] chulhas do not have u[n]limited life.

(iii) On an all India basis 19.3[%] chulhas are reported to be n[ot] working but they are existin[g]. They can be probably put to u[se] by repair and maintenance.

(iv) The fixed and portable chulh[as] are 1.38 and 1.48 times mo[re] efficient respectively than t[he] traditional chulhas.

(v) The NCAER was also requeste[d] to provide data on the percenta[ge] distribution of beneficiaries b[y] their working status of Improve[d] Chulhas for the year *1991-92*. A[s] per the all India figure receive[d] from NCAER the percentage [of] functional chulhas in use wa[s] 80.9% and functional chulha[s] not in use 5.3% thereby making [a] total of 86 2% for the year 199[1-]92. There is a marked improv[e]ment in the quality of impleme[n]tation over the passage of time [as] reported by NCAER.

Commercialisation

(i) Increased financial allocatio[n] by the Central Government t[o] cater to subsidy requireme[nt] for the higher numbers.

(Due to availability of fuel [at] almost zero cost, the fu[el] conservation objective is n[ot] easily realised by a larg[e] number of user household[s]. The withdrawal of subsidy s[o] as to involve greater use[r] involvement, may need to b[e] gradually phased over an[d] there is for the present, need fo[r] continuance of suitable sub

Year (Installation of Improved cookstove)	% of Functional Chulha Functional (in use)	Functional (but not in use)	Total
1988-89	42 6	4 9	47 5
1989-90	54 0	4 2	58.2
1990-91	66 7	5.0	71 7
(Combined for 3 years)	55 6	4 7	60 3

sidies by the Government, for wider propagation of the programmes).

(ii) Development of lower cost models

(iii) Implementing agencies to give due preference to users choice in selection of models

(iv) Increased emphasis on users training for optimum fuel use and maintenance

(v) Wider publicity for awareness among the rural masses

(vi) Greater involvement of non-governmental voluntary organisations/agencies

vii) Propagation of Programme through market forces—self employed workers (selected at block level on the basis of skilled workmanship from amongst potters/masons, etc with preference to women, wherever available), to motivate the rural households/beneficiaries and instal desired models/sizes of improved chulhas

'iii) Marketing promotion by manufacturers of portable chulhas coupled with quality assurance through 'ISI' marking.

x) Rationalisation of incentives to manufacturers—fiscal reliefs and soft loan financing through IREDA

.) Awards to States and field functionaries, based on improved functionality

'onclusion

While the objectives of the ıproved Cookstove Programme e quite laudable and its benefits ould be readily realised by the rural ıd semi-urban households, atleast th respect to control of smoke ıllution even if not as much for the ɛl conservation aspect (firewood ing available to many households rural areas at almost zero or minal financial cost, though it may involve considerable time/energy ste and drudgery), it is paraxical that the coverage so far has :n limited to a small percentage of tential household.

The users' large scale acceptance and rush for adoption of improved stoves on their own volition, without the need for any Government support, is yet to become a ground reality. While the Government subsidies towards the cost of improved cook-stove even at a level of 50% or above, could be justified on the basis of socio-economic benefits for the "poor" in rural areas, as also overall environmental considerations (easing of pressure on the forests), the complexities in administering subsidy have limited the implementation of programme to mainly State Government/nodal agencies and the market forces have not come into full play in the arena.

The association of voluntary agencies (with a credible record in the implementation of development programmes) has been a progressive step. The Implementing Agencies further need to select and involve trained masons/potters etc. for installation of improved chulhas on a more thorough basis, who may be able to motivate the rural households/beneficiaries and instal the desired models/sizes of Improved Chulhas as self-employment and entrepreneurial opportunity under the 'Self Employed Worker' scheme, with due incentives provided under the programme.

Although the programme is yet to come out of the 'subsidy trap', a progressive step has been taken during the year 1992-93 to deregulate the price controls earlier exercised from one central level for the whole of the country, to decentralise R&D effort to States' level as per local requirements, and to limit the maximum permissible subsidy in absolute terms. This would lead to greater involvement of the beneficiaries and also generate impulses for cost reduction, with the R&D efforts of the Technical Backup Units on the one hand, and the efforts of the manufacturers on other. The shift towards commercialisation of the programme may be gradually speeded up with the phased rationalisation of Government subsidies and emergence of market forces as to take care of the market promotion effort so very essential for large scale spread of a useful device to the rural households, coupled with intensive publicity and awareness campaigns by the Government on the electronic and print media for the targeted group of beneficiaries. □

The author is Jt Secretary Deptt of Non-Conventional Energy Sources, Energy Ministry

(Contd. from page 21)

have also been established for the protection of the Gir Lion, Crocodiles, Kashmir Stag, Himalayan Musk Deer, Indian Swamp Deer, the Browantlered Deer and Snow Leopard Some zoos are also engaged in captive breeding programmes successfully.

Environmental management is now accepted in India as a major guiding factor for national development. It is realised that environmental issues arise in every sector of the economy and that each sector should evolve its own solutions. This process of integrating environmental considerations into development activities is promoted through a system of environment impact assessment of the project before they get a clearance.

In the area of formal education, the National Policy on Education (1986), emphasises that there is a paramount need to create consciousness about the environment. It must permeate all ages and sections of the society, beginning with the child. The policy gives unqualified priority to universalisation of elementary education and substantial improvement in the quality of education. Detailed school mapping exercises have been planned under a Master Plan for universal provision of facilities for environment education. The National Council of Educational Research and Training (NCERT) has been assigned priority to environment as a subject in the model syllabi and instructional packages. □

Book Review

Handbook on Child: Pramila 'andit Baroosh; Concept Publishing :ompany, New Delhi, Pages 300; 'rice Rs. 320.

It has been universally acknow-:dged that a nation's children are its upremely important assets and that ne nation's future lies in their proper evelopment. It has further been :cognised that investment in children ; indeed an investment in the ation's future because a healthy, ducated child of today is the ntelligent and competent citizen of omorrow In spite of these, it has fficially been admitted that so far ne Plans of our country have been re-occupied with raising production nd productivity; enough attention is ot being paid in providing essential ducation, health, child-care and ther social services. It is on record nat State Governments tend, with a are exception of Kerala, to give nuch higher priority to 'productive :ctors' ignoring the claims of social :rvice sector. Against this back-round, it is heartening to note that ne Eighth Five Year Plan promises, *iter alia,* that "since human deve-opment will be the main focus of the ighth Plan, policies and programmes :lating to child survival and deve-opment will receive high priority."

In the above context, the book nder review is not only timely but xtremely relevant. This hand-book the result of strenuous efforts made y a person who worked for more nan forty years with and for hildren. Broadly, the book discusses fteen aspects of child development, rictly not falling under the cate-orisation of chapters. These fifteen spects are, Evolution of Child Care nd Welfare Services in India; Child Legislation; International Union for Child Welfare (IUCW); United Nations 'Children Fund (UNICEF); The Planning Commission (Five Year Plans); Brief History of Indian Council for Child Welfare (ICCW); Universal Children's Day; Rights of the Children; National Institute of Public Co-operation and Child Development (NIPCCD); National Policy for Children; National Children's Board; National Children's Fund; International Year of the Child (IYC); The Child in India Today, and, Quotable Quotes.

All the above aspects have thoroughly been dealt with supporting facts and figures. The brief analysis thereof and their relevance to child development have also been mentioned In particular, the 'Quotable Quotes' numbering 265 are a varitable feast, eloquently declaring the importance of child and one cannot resist quoting one of these, though lengthy, attributed to Abraham Linclon, i.e. "A child is a person who is going to carry on what you have started. He is going to sit, where you are sitting, and when you are gone, attend to those things which you think are important. You may adopt all the policies you please; but how they are carried depends on him, he will assume control of your cities, states, nations. He is going to move in and take over your churches, schools, universities and corporations, all your books are going to be judged, praised or condemned by him. The fate of humanity is in his hands." The publication makes interesting reading, it is both informative and absorbing. The handbook should prove to be a treatise for general readers, a manual for planners and administrators and a guidebook for field workers.

P S K. Menon

Cultural and Development-Cultural Patterns in Areas of Uneven Development; by K.C. Alexander and K.P. Kumaran; Publisher: Sage Publications India Pvt. Ltd., New Delhi, 1992; Pp. 203; Rs. 195.

Culture and development are very significant concepts for sociologists, anthropologists et al. Culture is defined as patterns, explicit and implicit, of and for behaviour, acquired and transmitted by symbols. Its essence is traditionally derived ideas and their attached values. A cultural system is a product of action, it is a conditioning element for further action. Though external, through the process of socialisation culture becomes internalised, and it becomes a part of an individual's personality, making it a source of motivation. Even though theoretically it is possible to have such fine distinctions, at the empirical level, such classifications are rather difficult. That is why, the authors of this study broadly conceptualised culture into cognitive (or knowledge) and evaluative ideas (or values). Culture being a component of socio-economic system, its pattern has to be in coherence with other aspects of the economy and society. This is the central thesis of this study. Based on this, the authors postulated that the pattern of culture in areas with different levels of socio-economic development would vary. They say, it is likely to be characterised by greater knowledge and more rational values in developed areas, and less knowledge and less rational values in less developed areas.

Ever since India attained independence, it has launched a variety of programmes aimed at alleviating the socio-economic disabilities of its people. Yet even after four decades of planned development a very significant portion of our rural population is still living in poverty. The authors of this important study plead that the cultural values must form an important component of any development strategy To demonstrate both the role of cultural values and the impact of development programmes on them, this study, conducted during 1984-85, investigates cultural patterns in regions which have experienced different degrees of development. Three areas—one each from east and west Uttar Pradesh and Kerala were chosen for the study. The authors obtained detailed data from a random sample of 600 adults and established the level of development of each area on the basis of information provided by the respondents and their families. They then studied the cultural patterns prevailing in each region by measuring nine components of the cognitive dimension and ten of the value dimension. These aspects included knowledge about natural phenomena, agronomic and livestock practices, and social relations Among the values selected were those relating to nutrition and health, cattle and basic values.

Based on this data, the authors commendably identify the socio-economic factors contributing to a change in both the categories of knowledge and values as also the relative importance of these factors. Exposure to mass media and education were identified as the two most significant and important sources of change Both knowledge and values were found to be strongly inter-related with a variation knowledge significantly influencing the pattern of values. They found that the magnitude of change was more pronounced in the cognitive dimension and values were seen to be more stable. The core values too changed under the influence of modernizing forces. Hence, they concluded that though infusing capital and encouraging industrial growth are certainly important, investing in cultural change will make the development process faster and smoother.

This book is theoretically rich and supported by empirical data. This pioneering study makes an important practical contribution to a subject of considerable importance in designing relevant and effective development programmes. This work will help those engaged in development studies, sociologists, anthropologists and decision-makers. □

Dr M C Paul

Essay Competition

To commemorate the Centenary of Swami Vivekananda's Bharat Parikrama and his Address at the Parliament of Religions at Chicago, Yojana (English) is organising an essay competition open to its subscribers only. The theme of the essay is: Swamiji's Bharat Parikrama, the Chicago Address and the message of Unity and Amity. The essay should be of about 1500-1600 words. The participants should mention their subscription number prominently. They should write on the top of the envelop "Essay Competition". There will be three prizes viz., First Prize: Rs. 1000/-, Second Prize: Rs. 800/- and Third Prize: Rs. 600/-. There will also be two consolation prizes of Rs. 400/- each. The prize winning essays will be published in September 1993 issue.

The last date for receipt of the entries is 31.7.1993.

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Scientific Manpower Development In India

Dr. Pawan Sikka

DEVELOPMENT of scientific and technical manpower constitute an important instrument for carrying out the scientific and technological programmes towards technology upgradation and economic development of the country

Qualified and capable S&T manpower is needed in the education sector for providing a sound base for the development of educational activities and performing basic research; R&D laboratories for enhancing the S&T capabilities and carrying out applied research, engineering and technical institutions to train the technical manpower for upgrading technological and industrial system towards increased productivity; medical fields to provide better health care facilities to all citizens etc in the country

The Government appointed a Scientific Manpower Committee, in 1947, to advise on the best methods of utilising and augmenting the scientific manpower resources in the country. The Council of Scientific and Industrial Research was entrusted with the task of preparing a national register of S&T personnel. Later, the Government expressed intention of human resource development for science and technology in the famous Scientific Policy Resolution, 1958 A Technology Policy Statement was introduced by the Government in 1983.

The Plan allocation for Science and Technology has been steadily increasing since Independence. From Rs. 20 crore in the First Plan, the allocation increased to Rs. 3716 crore in the Sixth Plan and further to Rs. 7568 crore in the Seventh Plan. It is observed that growth in allocation for Science and Technology was not very significant till the Fourth Plan. But the Fifth Plan witnessed a four fold increase in expenditure over the Fourth Plan period. Thereafter, the increase in the allocation was sizeable. This has helped in the establishment of several educational, technical and medical institutions and universities. The Governnment also encouraged its scientists and engineers to study at foreign universities and equip themselves with capabilities in new areas so as to face the challenges of the future. Even overseas scholarships are provided for this purpose under the various bilateral programmes to develop and enhance their S&T capabilities in chosen areas of research and expertise This has resulted in the generation of a large number of S&T professionals who have shown promise.

Total Stock

The total stock of S&T manpower is estimated to be around 40 lakh in 1990. India has, as on April 1990, about 3.01 lakh personnel employed in research and development establishments. Out of this, 35.2% were primarily engaged in R&D activities, 32.2% were performing auxiliary (technical supporting) activities, and 32.6% were providing non-technical/administrative support

In relation to population the stock of S&T personnel for India is not high enough as compared to that observed for developed countries India had 4 5 Scientists, Engineers and Technicians (SET) per thousand population during 1990 as compared to 184.81 in Canada, 111 14 in Japan, and 77.84 in Germany. Only 0 27 SET per thousand were employed in R&D system as compared to 3 4 in Canada 6 05 in Japan and 4 71 in Germany

A recent DST study indicates considerable present and prospective imbalance in specific areas of employment These relate to Agriculture and Veterinary Scientists, Engineers and Technologists and Medical and paramedical manpower Agricultural scientists are already in surplus by about 20% This was expected to rise to about 22% by 1990-91 Thereafter, it will have a declining trend and by 2000-01 it will decline to 12% As against this shortage of about 1.5 per cent of the demand is observed in case of Veterinary Scientists and this shortage is expected to increase to 9 per cent by 1995-96 and further to 18% by the turn of the century unless corrective steps are taken.

In the field of Engineering and Technology manpower, a surplus by

(Contd. on page 7)

Ensuring Better Investment Climate

INDIA is heading towards an economic revolution. Foreign investment is an integral element of the resources requried for the economic growth of the country. Several initiatives have been taken to promote this resource as well as NRI's participation in this great process

Recent changes in the policy towards foreign investment have become an integral part of the strategy of modernising the economy and establishing global linkages which will be of crucial importance in the emerging world economy. The budget for the year 1993-94 incorporates numerous path-breaking proposals to boost foreign investment in India These proposals include full convertibility of rupee and massive cuts in import duties.

Full convertibility will make the previous dual exchange rate system in which the exchange was less than the market exchange rate, redundant The system of dual exchange rate was a headache to exporters and other foreign exchange earners who had to surrender 40 per cent of their earnings at the official rate getting the benefit of the higher rate on only 60 per cent. Full convertibility will make all the foreign exchange operations lucrative and simpler. With this reform, the Government has removed one of the major bottlenecks.

Big foreign investors tend to have plants in foreign countries which provide crucial inputs to the manufacture of the products. The previous practice of high custom duties on imports had made their operations less profitable which acted as a hurdle in increasing their investment participation in India A further cut in their import and custom duties on the relevent products will definitely provide a fillip to their investment activities in India. These measures will also help in the development of domestic industries besides fostering a healthy competition The areas which are going to be benefitted by these cuts are capital goods, chemicals, electronics, metals, health care, computers and agricultural machinery

All these reforms must be seen in the light of the previous sustained efforts of the Government during the past two years. These reforms are: abolition of industrial licensing for all but 18 industries, virtual removal of import licensing on all raw material, components, intermediate and capital goods, hike in the foreign equity holding limit up to 51 per cent in most of the industries—for example, 100 per cent export oriented units (EOUs), firms producing life saving equipment and drugs and other areas of crucial importance to the economy, expeditious clearing of foreign investment proposals by Foreign Investment Promotion Board (FIPB) and facilities for portfolio investment by foreign investment institutions.

These steps along with the reforms in the current budget have made India quite attractive for foreign investors comparable to the best of Asia's new economic powers.

Early Results

Early results are encouraging though it is too early to judge the actual inflow of foreign investment on this count.

The total volume of foreign investment approvals at about Rs. 430 crore during August 1991 to December 1992, is more than three times the Rs. 127 crore of the total foreign investment approved in the last decade. In all, 1520 proposals of foreign collaborations have been approved during 1992. Further, investments worth Rs. 512 crore has been pledged by the NRIs till January 31, 1993 for setting up of industries in various fields like engineering, automobiles, chemicals and electricals etc.

Direct foreign captial investment is usually accompanied by advanced technological inputs also. This is having an positive effect on the rest of the industry. During April-December 1992-93, 1092 technology import agreements were signed as compared to 592 in the whole of 1989-90.

Encouraged by the reforms, several countries including United Kingdom, Germany and the United States have expressed an interest in signing bilateral investment treaties. The Government has already signed Multilateral Investment Guarantee Agency Convention (MIGA). All this will promote foreign investment in India manifold.

There is no doubt that as the reforms proceed and gain momentum, India can expect to attract a substantial share of private investment that is presently flowing to many countries in Asia. The tail of the tiger has already begun to wag and an impending roar appears to be just round the corner. □

India's Capital Goods Imports

J.S. Kochher

THE import of capital goods (of which machinery and transport equipment are a major segment) serves twin purposes. While it serves the immediate need of augmenting the indigenous capacity to produce consumer goods which may otherwise face a shortfall, it also leads to technological upgradation in the long run. This occurs when men working on imported machinery learn the associated technology and may even improve upon it by carrying innovations to suit local needs This emobdied form of technology transfer is less formal than the method involving technical agreements or collaborations in which there is grant of licence or disclosure of drawings and design and in return of which technical fees and royalties are required to be paid India has been importing machinery and transport equipment from rest of the world but due to resource scarcity and sometimes other reasons also, it has not made use of this form of technology acquisition fully

The World Development Report of 1992 tells us that 18 per cent of India's merchandise imports in 1990 were accounted for by machinery and transport equipment. The corresponding figures for China, Indonesia, Thailand, and Malaysia were 40 per cent and above. These are the countries with which we can relate ourselves for comparison in terms of development, but even among developed nations like Canada and USA, the importance enjoyed by this sector in overall imports is no less. Figures show that the share of capital goods in our imports has not been more than 25 per cent in majority of the past few years

The new industrial and trade policy announced in July, 1991 made import of capital goods easier New units and those undergoing expansion except those coming in the restricted list could be granted licences automatically for import of capital goods provided their import is fully covered by foreign equity or if the import requirement is upto 25 per cent of the value of plant and machinery subject to a maximum of Rs 2 crore Later, even more relaxations were given for import of capital goods and especially so in case of foreign investment. In the budget of 1992-93, there was a cut in import duties on capital goods also. But though machinery and transport equipment imports have risen in recent months, the share of capital goods in India's overall imports is still low compared to other countries being only 20 per cent of total imports during April to November 1992 The share of machinery and transport equipment would naturally be even lower Though foreign investment has shown considerable rise during this period, project imports have not risen much at the same time

India's Imports

Year (1)	Capital Goods (2)	Total Imports (3)	(2) as per cent of (3) (4)
1985-86	4285	19658	21 8
1986-87	6488	20096	32 3
1987-88	6566	22244	29 5
1988-89	6956	28235	24 6
1989-90	8831	35416	24 9
1990-91	10416	43193	24 1
1991-92	10394	47797	21 7
1992-93 (April-Nov)	8378	41881	20 0

Source DGCI&S

Capital Goods Imports

(Rs crore)

Items	April-Nov.91	April-Nov.92	Per cent change
1 Manufactures of Metals	202 64	274 24	35 33
2 Machine tools	263 75	299 70	13 63
3 Machinery	2946 10	4640 68	57 52
4 Transport equipment	623 7	921 40	48 05
5. Project goods	2223 62	2241 51	8 04
6. Total	6260 00	8378 00	33 83

Source: DGCI&S.

From the above it is clear that though imports of capital goods, especially those of machinery and transport equipment have risen considerably in recent months, it should not be a reason for alarm and bring about a reversal of liberalisation measures at least in the capital goods sector. This is necessary to fill the gap between technological levels of our industry and the best existing worldwide. This is why even developed nations do not ignore this sector as is evident from their structure of imports On the other hand, it still has a less significant share in our imports A case, therefore, exists for further concessions on capital goods imports. This will also help in our efforts to attract foreign investment which is so essential in the present conditions. However, we would be able to afford these additional imports of capital goods only if our petroleum bill remains in check which may be possible through increased involvement of foreign investment in domestic oil exploration which would again be more forthcoming if there is easy access of capital goods.

It has been said that India is having a strong base in manufacture of critical equipment,' detailed e[...] gineering project execution and still importing these in a number [...] projects where it would have be[...] enough to obtain only proc[...] technology through process licen[...] from foreign parties But if this [...] true, then domestic industry shou[...] be able to withstand competition a[...] free import regime for capital goo[...] should pose no problem even [...] obtaining foreign exchange fr[...] market which is a costly propositio[...]

The autho[...]
Sr Research Off[...]
Planning Commissi[...]

(Contd. from page 4)

3% is expected by 1990-91 in case of Degree holders This surplus will increase to 6% by 1990-96 and further to 8% by 2000 AD In case of Diploma holders the surplus will be by 9% by 1990-91 Thereafter it will show a declining trend and by the turn of the century there will be an approximate balance in respect of their demand and supply

In the field of medical manpower, already there was shortage of doctors by about 18% in 1980-81 itself This shortage is expected to increase to 20% by 1990-91

Thereafter it will show a somewhat declining trend and by 1995-96, the shortage will decline to 17% and by 2000-01 AD to 12% In case of nurses, the shortage is expcted to be large. By 1990-91, it will lag by 39% of the demand and this shortage will further rise to 50% by 2000 AD Substantial shortage is also anticipated in case of health educators, lab technicians, nurses-midwives, health assistants (male) and health workers (male)

Further gaps in supply in relation to demand are also expected in some emerging areas. A large number of new installations that are being established in the area of electronics and tele-communications will be in need of properly trained manpower to maintain and keep the industry productive In the energy sector, for new technologies which have been developed to meet the needs of the rural sector, sufficient talented manpower is needed to meet the requirements Also in Food Processing, Textile Designing, Printing and Computer Science, additional technical manpower of adequate capabilities is required

While the total number of qualified S&T personnel appears large at first sight, the actual number per capita is very small and the quality variable The education system still covers only a relatively small strata of our society Though investment and salaries of scientific personnel etc have gone up numerically, the real increase has not been significant, when one takes note of the inflation over the same period

Personnel Policy

The Scientific Advisory Committee to the Cabinet (SACC), in 1982, recommended a Flexible Complementing Scheme for S&T personnel working in about 390 S&T institutes, classified as "Major" Scientific agencies/Departments under the Central Government so as to provi[...] them avenues for future promoti[...] and professional growth assessi[...] them after every 5 years

The Department of Science a[...] Technology with an aim to implem[...] ting the personnel policy for S&[...] manpower as spelt out in t[...] Scientific Policy Resolution a[...] Technology Policy Statement a[...] recommended by SACC issued gui[...] lines in 1986 to all the S&[...] institutions The decision that t[...] S&T institutions are exempted fr[...] the purview of the UPSC i[...] recruitments and promotions as w[...] as introduction of 100% flexibility [...] promotions are the instruments [...] accomplish the aim of offering go[...] service conditions to the scientists [...] India

Thus, development of hum[...] resource potential in science a[...] technology constitute an effect[...] strategy along with the formulati[...] of policy guidelines for the develo[...] ment and application of science a[...] technology in India. Concerted effo[...] are required to recruit, retain a[...] consolidate the strength of potent[...] S&T personnel to enable them [...] achieve peaks of excellence.

The author is Direc[...]
Department of Science & Technolo[...]
New De[...]

Recommendations Of Tax Reforms Committee

THE Government of India had constituted in August 1991 a high level committee called the Tax Reforms Committee (TRC) under the chairmanship of Professor Raja J Chelliah. The terms of reference and the major recommendations of the Committee were.

I. Terms of Reference

The terms of reference of the Committee were to examine and to make recommendations on the following:

(i) Ways of improving the elasticity of tax revenues, both direct and indirect, and increasing the share of direct taxes as a proportion of total tax revenues and of GDP,

(ii) Making the tax system fairer and broad based with necessary rate adjustments, particularly with regard to commodity taxation and personal taxation;

(iii) Rationalisation of the system of direct taxes with a view to removing anomalies, improving equity and sustaining economic incentives;

(iv) Identifying new area of taxation,

(v) Ways of improving compliance of direct taxes and strengthening enforcement,

(vi) Simplification and rationalisation of customs tariffs with a view to reducing the multiplicity and dispersion of rates and eliminate exemptions which have become unnecessary;

(vii) Reducing the level of tariff rates, keeping in view, the need for mobilising resources to facilitate fiscal adjustment and the objective of promoting international competitiveness,

(viii) Simplification and rationalisation of the structure of excise duty for better tax compliance and administration;

(ix) The scope of extending the Modified Value Added Tax (MODVAT) scheme, and

(x) To make recommendation on any other matter relating to the above terms of reference

II. The Recommendations

The recommendations of the Committee were made in two stages, first through an Interim Report submitted in December 1991 and through the First Report in August 1992*The importance of the Interim Report lies in the fact that it provided a basis for some of the proposals in the Government of India Budget for 1992-93 The Interim Report's recommendations that were not implemented in the Budget for 1992-93 have been specifically mentioned in the Final Report

1. Interim Report

The Committee has recommended a host of tax reform measures, keeping in view the basic objectives of revenue buoyancy and simplicity

The major recommendations relating to direct taxes are as follows.

(i) revision of income tax exemption limit to Rs. 28,000; (ii) reduction in the number of income-tax rate slabs, (iii) lowering of tax rates with an entry rate of 20 per cent and maximum marginal rate of 40 per cent, (iv) clubbing the income of the minor child with that of the parent; (v) introduction of presumptive tax on small retail traders whose annual turnover is below Rs. 5 lakh, (vi) imposition of wealth tax at a rate of 1 per cent of the value of non-productive assets (i.e. non-financial assets) that exceeds the exemption limit of Rs. 15 lakh (vii) inflation adjustment of capital gains for capital gains tax; (viii) limiting the perquisite value of rent free or concessional rent residential accommodation provided to employees whose annual salary exceeds Rs. 36,000 to an equivalent of 20 per cent of the salary or the actual expenditure by the employer, whichever is less, (ix) inclusion of fifteen per cent of leave travel allowance, sitting allowances received by MPs and MLAs and fringe benefits implicit in the concessional interest rate charged on loans granted to employees for the acquisition of consumer durable goods and houses in taxable income, (x) limiting the allowances exempted from tax under Section 10(14)(ii) of the Income Tax Act to 10 per cent of the salary; and (xi) implementation of Estimated Income Scheme with respect to assessees whose total annual business turnover is more

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Prepared in the Division of Fiscal Analysis of Department of Economic Analysis and Policy The Reports considered are. (i) Tax Reforms Committee- Interim Report (December 1991), and (ii) Tax Reforms Committee—Final Report, Part-I (August 1992), Government of India, Ministry of Finance

*The Final report of the Committee is divided into two parts The final report under reference is relating to Part I. Part II of the Report will be dealing with restructuring and reforms of customs duties

than Rs. 5 lakh but less than Rs. 20 or Rs. 25 lakh.

In the sphere of indirect taxes, the Committee suggested for a gradual switching over to Value Added Tax (VAT) covering services as well as commodities. The major recommendations in this regard included: (i) reduction of the multiplicity of rates of excise duty to three (10, 15 and 20 per cent), barring the selective excise duty on non-essential commodities or commodities injurious to health which could be levied at higher rates, say 30, 40 or 50 per cent; and (ii) enlargement of the tax base by including services within the tax brackets and by withdrawing exemption notifications. the selected services identified by the Committee to bring under taxation included advertising, stock brokers, automobile insurance, insurance of residential property, personal effects and jewellery.

The law and procedures relating to valuation should be simplified and specific duties should be replaced by *ad valorem* duties in respect of most of the goods.

The imposition of consignment tax, which is for preventing the fragmentation of the common market, should follow an agreement between the Centre and States regarding the modalities of its levy and the sharing of proceeds. In case, this proves to be impossible, the level of the Central Sales tax should be gradually brought down to 1 per cent and after that, the consignment tax could be levied at the same rate.

2. Final Report

The Committee, while finalising the final Report, has considered that the framework of reforms recommended should form the basis of subsequent instalment of reforms so that ultimately the entire tax system gets radically transformed into a 'simple', 'fair' and 'rational' one from economic point of view. The lines of reforms, therefore, were mostly those parts of the tax system and its adminsitration which had not received attention in the Interim Report. The five broad areas of emphasis of the final Report were.

(i) Corporate profit tax including the taxation of foreign entities, the issue relating to business taxation, the interest tax, the taxation of agricultural income, the gift tax and the tax on charitable organisations;
(ii) Further reforms of the system of domestic indirect taxes, particularly at the Central level;
(iii) Improvement in tax administration procedures, removal of harsh and complicated provisions and appellate procedures;
(iv) Major problems relating to tax administration, and
(v) Revenue audit

(A) Further Reforms of Direct Taxes

(i) Taxation of Corporate Profits—Domestic Companies:

In the case of corporate taxation, the Committee recommended that corporate tax rate for all domestic companies should be lowered to 45 per cent in 1993-94 from the present level of 51.75 per cent by the abolition of surcharge and to 40 per cent in 1994-95. At the same time, in order to simplify and improve the equity of the tax system as also to prevent tax evasion, the Committee has recommended the withdrawal of concessions under Section 35CCA, 35CCB and 35AC which provide for deduction from income, expenditure by way of donation to approved associations/institutions carrying out programmes on rural development or any scheme or project for promoting social and economic welfare.

(ii) Depreciation Allowance

The Committee recommended that the general rate of depreciation on plant and machinery may be retained at the existing rate of 25 per cent.

(iii) Taxation of Non-Residents including Indian branches of Foreign Companies:

The Committee advocated that with the reduction in the rate of tax on domestic companies there will be scope for reduction in the tax rate of foreign comapnies as well. Taking the withholding tax rate of 25 per cent, the tax differential between domestic and foreign companies should be around 7.5 percentage points and should not, in any case, exceed 10 percentile points.

As a further measure for attracting foreign investment and foreign technical know-how, the Committee has considered that double taxation of the foreign company in respect of both fees obtained for the technical services and salaries paid to personnel stayed in India beyond a certain number of days needs to be avoided.

The Committee recommended the discontinuance of payments under the Section 10(15) (iv) of the Income-tax Act (i.e. interest payable by the Government, financial institutions and industrial undertakings on borrowings abroad is exempt from tax).

(iv) Treatment of Charities and Charitable Organisations:

For rationalising the provision of the income tax in regard to charities and charitable organisations, the major recommendations by the Committee are as under:

(a) Approvals granted and renewals of aprovals should be rated for 5 years.
(b) Of the income from any business accruing to a trust/institution not more than Rs. 5 lakh may continue to be given exemption;
(c) The restrictive provisions contained in Section 13 of the Income-tax Act for the withdrawal of exemption available under Sections 11 or 12 need to be reviewed for avoiding hardship in genuine cases; and
(d) The monetary limit of Rs. 25,000

prescribed in respect of substantial contributions may be raised to Rs 50,000

(v) Treatement of losses:

The Committee, with a view to correcting the ineqalities in the existing schemes of set-off and carry forward of losses, recommended the following

(a) the newly introduced Section 71A in the Income-tax Act extending scheduled treatment to loss from house property should be revoked; and

(b) the losses carried forward for set-off in the subsequent years separately under each head of income should be allowed *inter se* set-off.

(vi) Taxation of Agricultural Income:

The Committee has recommended that agricultural income in excess of Rs. 25,000 accruing to non-agriculturists to be brought under the purview of tax to promote equity and reduce scope for tax evasion Agricultural income for this purpose should not include income from plantation which is subject to taxation by the States. The entire tax yield attributable to the agricultural component of income could be distributed among the States on the basis of origin.

(vii) Recommendations relating to Interest Tax, Gift tax, etc.

(a) The Committee has recommended the abolition of the interest tax as it acts as a wedge between the reward to the savers and returns on investment

(b) According to the Committee, the levy of gift tax should be continued as it discourages transfer of assets for reducing the total tax liability of a family The exemption limit, however, should be raised from Rs 20,000 to Rs. 30,000 considering the rise in prices and the increase in the threshold of income tax.

(c) According to the Committee, the provisions of Section 43B should be restricted only to taxes, duties, etc. However, other expenditure like contributions to provident fund or gratuity fund or any other fund for the welfare of the employees, bonus or commission for services rendered payable to employees referred to in Section 36(i)(ii) and interest on any loan/borrowing from any public financial institution should be taken out of the purview of Section 43B.

(d) The Committee has recommended that no capital gains tax or gift tax may be levied in the case of Compromise, Arrangement and Reconstruction of Companies

B. Indirect Taxes

(i) Structural Reform of the Excise Tax System

The Committee is of the view that the present excise tax system, consisting of two parts viz (a) MODVAT and (b) excise on gross value basis with no set-off for some sectors, has to be gradually transformed into a genuine VAT at the manufacturing level, as extending the excise tax system has cascading effects and would have undesireable consequences of increasing input costs and output prices The transformation should take place at the Central level as well as wholesale level. As regards sales tax, the Committee suggested that this tax could be converted into a form of State VAT.

To move towards a VAT at the manufacturing level over the next three to four years in a phased manner, the Committee has suggested the following steps·

(a) Extension of excise to cover most manufactured goods at present be exempted;

(b) Reduction in the level of rates on some commodities which are unduly high such as plastics and synthetic resins, paints and dyes, glass and glassware, man-made filament yarns, tyres and tubes, motor vehicles, cosmetics and air-conditioning and refrigerating devices;

(c) Gradual reduction in the number of rates ultimately to three between 10 and 20 per cent for all goods that would be covered by the VAT system,

(d) Extension of MODVAT credit to all inputs that are used in the production of, or incorporated in, taxable commodities except for office equipment, accessories and furniture, building material,

(e) Extension of MODVAT credit for machinery not fully at the time of purchase, but in instalments during a subsequent period of years, could be provided for,

(f) Extension of VAT to the more important services used by productive enterprises;

In order to make the indirect tax system more rational, the Committee recommended extension of VAT to the wholesale stage According to the committee, the wholesale stage implies traders who buy from manufacturers and sell to other manufacturers or traders For purpose of this tax, the Committee has defined wholesalers to mean those whose total turnover exceeds Rs. 50 lakh or Rs. 1 crore.

As regards sales tax, the Committee is of the view that this tax could be converted into a form of State VAT within the manufacturing sector.

C. Problems relating to Tax administration

According to the Committee, the success of tax reform depends on the manner in wihch taxes are administered. The root causes for the present unsatisfactory state of affairs in the field of tax administration, as identified by the Committee, are high

rate of taxes, multiplicity of duty rates, loopholes in the tax laws, multifarious exemptions, concessions and deductions, frequent amendment of rates and exemptions and fixation of unrealisatic targets, lack of accountability, lack of proper and adequate training etc. The Committee, therefore, recommended the following measures to bring about a significant improvement in tax administration and enforcement.

(i) Towards the objective of a stable tax regime, the Committee suggested that the Government should renounce the practice of introducing changes and concessions in each year's budget, but only *structural reform* should be carried out as per given agenda

(ii) Targets for tax collection should be fixed realistically keeping in view the expected rate of growth of the economy and the likely rise in prices

(iii) The assessing officers should be made accountable for their actions, which in general, is intended to remove the harassment caused to the assessees

(iv) Constitution of a Settlement Commission for quick and final settlement of complicated tax cases. However, in order to ensure that it does not become an easy escape route for tax evaders, the Committee has suggested that only complicated cases involving disputed facts and questions of law should be settled and the limit of income tax payable for cases referred to the Commission should be revised from the existing Rs. 50,000 to Rs 1,00,000.

D. Problems Relating to Administration and Enforcement of Direct Taxes

According to the committee, the existing direct tax administration is characterised by several major problems such as, overlapping of functions, lack of real control in the execution of tasks, inefficient manual processes, scattered and deficient guidelines, inadequate arangements for departmental representation in legal disputes, lack of sound information system and deficient facilities which damage the tax adminstration's image. The Committee is of the opinion that a global solution to these problems is necssary to achieve three fundamental objectives, viz., modernising the administrative system in order to achieve better tax payer control, correcting structural failures that result in an overlap of functions, scattered or deficient guidelines and lack of continuity and effectiveness of the process, and promoting deconcentration Accordingly, the Committee has suggested the following measures to improve the administration of direct taxes.

(i) The existing identification sytem of Permanent Account Number (PAN) is found to be deficient since its coverage of potential taxpayers is too narrow. Besides, multiple numbers have been issued at times to a single person, and the system is not available in an on-line PAN dirctory on an all-India computer network To remove these deficiencies and instead develop an efficient tax compliance control system the Committe recommended that the PAN may be replaced by a new Taxpayer Identification Number (TIN) which should cover all potential tax payers. In order to ensure that a large number of persons obtain the identification number, the permission for certain transactions, services or investments or carrying on certain trade/professions should be made contingent on the persons having a TIN.

(ii) The Committee made specific recommendations with regard to tax-declaration forms and procedures relating to it towards the objective of obtaining ad quate information which ul mately helps to gain maximu revenue. Towards this objectiv the Committee recommended new *information system call* Tax Account Information S stem (TAIS) which wou consist of manual and cor puterised data base enablii thereby the Department keep up-to-date informatic for each tax payer with respe to his debits, credits, intere payment arrangements etc.

(iii) The Scheme of Summary A sessment should be retaine with necessary modificatio Anomalies arising out of lac of a clear definition of *prin facie* adjustments and delay the disposal of applications fc rectification of *prima fac* disputes should be removed

(iv) In the sphere of scrutir adjustment, the Commtitt suggested that in selectir cases, there should be a con bination of the criteria randomness and probability evasion The discretionai power of the assessing officer i selecting cases for scrutir should be reduced so that tl possibility for showing favou and getting illegal gratificatio would be minimised.

(v) The Committee stressed th adequate information conce ning tax payers (Tax Pay Information System) is essenti for securing additional revenu With this objective, a numb of recommendations we made which *inter alia* recon mended easy availability th return of income should t filled by: (a) all persons who total income during the previou year exceeds the maximu amount not chargeable to ta except salaried employe whose income from other sourc is totally exempt under the la

(e g. under Section 80L) or does not exceed Rs 15,000 on which tax has been deducted by the employer at the proper rate (these salaried taxpayers will be required only to submit a single statement in a special form if their taxable income exceeds Rs. 50,000), (b) all companies irrespctive of the level of income, (c) all persons (other than companies) carrying on business whose total turnover exceeds Rs 5 lakh irrespective of level of income (d) all persons (other than companies) carrying on a profession whose gross receipts exceed Rs 1 lakh and (e) all Trusts under Section 11 to 13 of the Income-tax Act

(vi) Suggestions have also been made in regard to search and seizures basically to avoid harassment of the assessees by the Department officials In this regard, the Committee recommended that Section 132(1) should be amended in such a way that only officers of the level of Chief Commissioner can authorise a search and only officers of the level of Deputy Commissioner or Assistant Commissioner can be authorised to conduct the search assisted by Income tax officers Further, for speedy prosecution of cases of large scale evasion, the Committee suggested the setting up of Special Court, whenever required, in the case of tax evasion involving not less than Rs 5 crore

vii) The Committee considers that following the amendment introduced by the Finance Act, 1992, which has increased the proportion of the first instalment of advance tax from 20 to 30 per cent, there would be greater probability of having to pay interest on shortfall in the first two instalments owing to unforeseen income arising particularly in the last quarter. As the estimation of income cannot be precise, compliance in this regard would be difficult. In order to mitigate the hardship on this account, the Committee recommended that interest under Section 243C should not be levied in cases where the first and second instalments of payment of tax by the assessee are each equal to 30 per cent of tax liability on the basis of the returned income of the immediately preceding assessment year

E. Problems of Administration of Indirect Taxes

After identifying the major problems on the indirect taxes front, the Committee's major recommendations are.

(i) Periodic updating and simplification of procedures
(ii) Reactivisation of the inspection system to ensure accountability of the various levels of revenue administrators.
(iii) With regard to valuation of excisable goods, the Committee has suggested that the Government could fix *tariff value* for suitable commodities such as sugar, acids, gases, caustic soda and aerated water and to move over to a system of assessment on the basis of *invoice value*, as the MODVAT or VAT becomes the mechanism for resource mobilisation
(iv) Regarding short recovery and refunds, the time limit for demand of duty short-paid or short-levied should be brought down from six months to three months. The period of refund may also be reduced to three months
(v) The time limit of six months may be fixed for finalisation of provisional assessment except in exceptional cases like those relating to variation clauses in contracts.
(vi) The statutory forms of gate pass for removal of excisable goods may be suitably amended in order to minimise the possibility of the figures getting fraudulently changed with a view to getting a higher amount of MODVAT, and
(vii) A special scheme of *baggage duty* on those returning NRIs who had stayed abroad at least six months, on the lines of the already implemented Gold Import Scheme, may be introduced The rate of duty on the dutiable goods in excess of Rs. 3,000 should be 100 per cent if paid in foreign currency upto a limit of Rs. 1 lakh value of goods The twin objectives of this scheme are to earn more foreign exchange on the one hand and giving adequate protection to domestic industry on the other.

F. Problems relating to Appeals and Appellate Procedures

With regard to the existing system of appeals, the Committee after identifying the major problems, made the following major recommendations (i) The average time for disposal of appeals at first appellate should not exceed a period of six months and for this purpose, a suitable number of temporary posts of Commissioner (Appeals) may be created for a period of two to three years to reduce the average time for disposal; and (ii) The two tribunals viz., Customs, Excise and Gold (Control) Appellate Tribunal (CEGAT) and the Income-tax Appellate Tribunal (ITAT) should be integrated into one apex body called the National Revenue Tribunal (NRT) with two separate wings for direct taxes and for Central excise and customs which would facilitate some inherent advantages like common infrastructural facilities.

(Contd. on page 18)

National Health Policy: Progress And Pitfalls

Devendra Kothari and Anuja Gulati

THE National Health Policy which was approved by the Indian Parliament in1983 marked a beginning to the quest for equity in health expressed as WHO's goal of 'Health for All' by the Year 2000 The policy, hence, aimed at providing a decent level of health for the people of India Now, well into the last decade of the century, the promises made in the policy are fading out and portraying a gloomy picture, which force us to think if we could achieve the goals set for 2000 A D even by the year 2011 This paper makes an attempt to trace the reasons for the dissatisfactory performance and see what lessons can be learnt

The 1978 International Conference organised by WHO and UNICEF on Primary Health Care (PHC), through its declaration at Alma Ata offered the basis for appropriate action directed towards the internationally accepted goal of 'Health for All by the Year 2000', and the Indian National Health Policy is mainly based on the Primary health care strategy as outlined and agreed upon in the declaration. "Primary health care is essential health care made universally accessible to individuals and acceptable to them through their full participation and at the cost the community and country can afford"

The key elements of Primary Health Care are nutrition; immunisation; first aid; maternal, child health and family planning, sanitation and water supply, supply of essential drugs, control of endemic diseases and health education. All these elements of primary health care are essentially related to each other. These elements are to be achieved through approaches like easy accessibility of services, inter-sectoral action for service integration and community participation

According to the PHC approach, the promotion of health should be based on action in the socio-economic sphere as well as in the health care sector itself The former aims to counteract the causes of ill health and to make the development process more likely to contribute in improving people's health. The latter tries to make the existing health services more equitable and effective in relation to the needs of the people. Yet these issues were never operationalised as central features of the strategy, and the existing health delivery approach is essentially technocratic in nature and indeed often paternalistic health is something to be 'delivered' to the population by health professionals and their assistants

A decade has almost passed by since this beginning was made, but unfortunately India has not made much progress towards attainment of the goal of "Health for All", which was to be measured by some indicators shown in the table. Despite the reasonable economic growth in the last 10 years, poor housing, lack of sanitation and safe water supply, inadequate dietary intake etc. persist and explain the continuing high incidence of infectious diseases and the elevated infant and maternal mortality rates. The poor performance of the health system relative to the health needs of the country is well known Two-fifth of the population lacks regular access to health services, which are either inadequate or maldistributed, socially and regionally. The services provided are often over-sophisticated in relation to the most frequent causes of illness and death Curative care takes up about 90 per cent of the health sector's expenditure, leaving insufficient resources for preventive and promotive activities In addition, the health services usually operate at a low level of productivity due to a large number of poorly coordinated agencies involved in health care and the ineffectiveness of sectoral planning, many government units are in fact under utilised. Wastage of resources often coexists with shortages elsewhere, such that health units are not properly equipped and staffed

What's Wrong

A question that arises here is what went wrong? One may argue that resources allocated to achieve the goals laid down in the policy were not sufficient. Although, it is a known fact that social sectors, especially health and education have been neglected in our planning process and have not been given their due recognition. It should however, be accepted that the limited resources allocated were not put to the right use. Moreover, implementation of the primary health care strategy was largely supported by funds received from external donor agencies. In this context a model plan for creation of health facilities and provision of services was developed in order to improve the health satus of people in the backward areas. To implement the Model Plan a number of districts in different States of the country

were selected on the basis of socio-economic and health related "backwardness criteria". It was thought that lessons learnt from this experiment will help to achieve the goal of 'Health for All by the Year 2000' With financial assistance from bilateral agencies like World Bank, USAID, ODA (UK), DANIDA (Denmark) and UNFPA around 125 districts were selected (which are about one-fourth of the total districts of the country) for special treatment Some of these district projects have been evaluated by independent organisations and it appears that these projects instead of contributing towards initiating the approaches laid down to achieve the goals of our national health policy merely contributed towards development of physical infrastructure and recruitment of manpower For example, the number of Sub-Centres and Primary Health Centres which provide health care in rural areas have increased from 84,053 and 10,705 in 1985 to 1,30,390 and 20,531 in 1990, respectively Similarly, a sizable increase has been noticed in manpower working in the area of health However, a similar trend was not visible in the quality of health care being provided For example, the percentage of maternal deaths due to causes related to anemia has declined from 18 9 per cent in 1983 to only 17 8 per cent in 1987 Maternal deaths related to bleeding at the time of pregnancy have infact increased from 23.8 per cent in 1983 to 27 9 per cent in 1987 Further, the percentage of infant deaths due to respiratory infection have increased from 15 1 per cent in 1983 to 18.4 per cent in 1987 Similarly, the incidence of diarrhoea among infants has also increased from 9.5 per cent in 1983 to 10 per cent in 1987. (Year Book, 1989-90, Family Welfare Programme in India, Ministry of Health and Family Welfare, Govt of India). It is hence felt that resources, although limited were not insufficient so as to hinder the effective implementation of the health policy It is more likely that the problems lie elsewhere

Table 1

National Health Policy Goals Set And Achievements

Indicator	Goals 2000 AD	Current Level
Crude birth rate (Per 1000 population)	21	30 5 (1989)
Crude death rate (Per 1000 population)	09	10 2 (1989)
Infant Mortality rate (Per 1000 live births)	60	91 (1989)
Maternal mortality rate (Per 1000 deliveries)	02	4 5 (1989)
Annual population growth rate (Percent)	1 2	2 1 (1991)
Percentage of total deliveries by trained birth attendants	100	40 50 (1987)
Percentage of pregnant women receiving ante-natal care	100	40-50 (1987)
Couple protection rate (Percentage)	60 0	43 3 (1990)
Life expectancy at birth (Yrs)		
Male	64	55 6 (1981-86)
Female	64	56 4 (1981-86)

Source Year Book 1989-90 Family Welfare Programme in India, Ministry of Health and Family Welfare, New Delhi

Insufficient Understanding

India adopted the strategy outlined at Alma-Ata (in the form of its Health Policy) without a thorough understanding of the issues involved in it The strategy was imposed on the existing system without analysing whether the system was competent enough to implement the strategy in its true sense. Further, knowing fully well that India was in no position to implement all elements of the primary health care strategy, as noted above, a decision was taken to bring about a break-through in all elements Instead of this kind of a diffused approach, a concentrated effort should have been followed, by selecting a few vital elements like mother and child health and family planning, immunisation, water supply and sanitation. These important items would have had a greater impact in improving the general health condition It has been argued that decline in the death rate in Britain from the 18th century onwards had more to do with improvements in hygiene, sanitation and safe water supply than with advances in medical knowledged provision of health care

It has also been argued that targets set in the health policy were unrealistic to be achieved as noted in the Table It is, however, felt that targets were not unreasonable but an appropriate mechanism could not be developed to attain them. Some other developing countries like Thailands, Indonesia and Malaysia although far behind India in terms of infrastructure, equipment, etc. when the primary health care strategy was initiated are today far ahead of us as regards the health status of their masses.

It appears that the health programme was not managed properly, even though additional health resources were made available to the health budget from inside or outside the country, very little improvement in primary health care could be achieved. Most health resources go

to providing unnecessary sophisticated curative health care and little money is left for health promotion and disease prevention.

This brings us to the conclusion that the the basic approaches on which the concept of primary health care rests were neglected from the very beginning. These include the universal availability of essential health care to individuals, families and population groups according to need; involvement of communities in planning, delivery and evaluation of such care and an active role for other sectors in health activities.

Lessons

One can learn two important but related lessons from the past experience: First is the necessity to put health in its proper multi-sectoral perspective, which is so much wider than the narrow framework of the health care that has dominated the discussion in the country so far. Many health care professionals—even well meaning ones—have fallen into the trap of 'medicalising' health, which masks the continuing socio-economic determinants of health and disease, and they have thereby contributed to brainwashing the population into believing that health care is a sufficient condition for achieving Health for All In future, health policy must not be limited to health care organisation, which is only one focus of the former It must be clarified how and to what extent, the socio-economic determinants of illness will be dealt with in the socio-economic spheres Health care services will then appear as just one of the measures that must be adopted to promote, protect and restore health.

It may be difficult for those who earn their living by dispensing medical care to accept such an argument, but a critical evaluation of the limits and scope of health care is absolutely essential. Countries that have managed to undertake radical changes in their health systems have often done so without the help of their health care professionals.

Secondly, the national health policy was not submitted for wider social scrutiny and support. Since primary health care is a mechanism of providing health care to the people by the people, community participation stands out as the most important aspect of the PHC strategy. Community participation will accrue only by involving the community in decision making, provision of services and evaluation of the same. For effective community participation, the community should have a stake in the programme. The village health guide scheme which was the first major step taken towards achieving community participation, turned out to be a failure mainly because the community did not have a stake in it, instead, it resulted in an increased degree of Government participation in the programme. Once the Government withdrew funds set-aside for this purpose, the scheme failed in many States. The first step towards attaining community participation is to decentralise the programme and make district the nodal point for implementation of all activities even if the funds may be provided by the Ministry of Health and Family Welfare in Delhi.

Selection

It is thus necessary to select those processes that are most conducive to the provision of health care according to the criteria of equity, cost-effectiveness, acceptability and feasibility. Thus, health care must be placed under wider social control Most of the existing problems result from the fact that the interests of the consumer elites, and of the producers of health care services and goods, have prevailed over those of the vast majority of the people. The latter have scarcely had a say either in policy making or in controlling the operation of health care sector. The present degree of political and bureaucratic centralisation obstructs the formulation and implementation of alternative health policies appropriate to the different social and regional conditions of the country. An effective decentralisation of health care planning and management is thus necessary if the health policy wishes to achieve Health for All at the earliest.

Decentralisation will automatically result in bringing about a convergence of different departments, agencies, voluntary organisations and local bodies working in the area, to come to a platform for making decisions in collaboration with each other, thus, helping all sections of the society to own the decisions taken and work effectively towards their implementation It would further avoid duplication of efforts. This in turn will improve the service delivery component and help to enhance accessibility of services available.

The foregoing analysis brings us to infer that the problems are evident and solutions are available. If immediate action is not taken on the above lines, the concept of "Health for All" will not become a practical reality in India We will continue to be a country groping in the dark in search of an improved health status for our masses. It is because the health situation in India has reached a point where technique alone can contribute little towards finding solutions to the crucial questions that are still unresolved. The recognition of this fact and the democratisation of the health debate, must be top priorities if society is to exercise control over the causes of its health problems and over the health care systems. □

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Fertility And Family Planning

Dr. Biswanath Debnath

Discussing the issue of empowerment of women and fertility, the author notes that their low economic status and economic dependence on men has a bearing on high rate of fertility. The study reveals that among the socio-economic indicators strongly associated with fertility decline is improvement in the status of women. The author draws attention to the success story of the Gujarat State Crime Prevention Trust, a local women's NGO and feels suitable lesson can be learnt from the experience.

CAN the empowerment of women reduce fertility? Given the Indian patriarchal social system, the answer is perhaps "no." Indeed, the experience of Rajasthan with regard to its ambitious Women's Development Programme has shown that the idea of the empowerment of women through State intervention is a normative or theoretical proposition in this country. Yet, unchecked population growth coupled with increasing poverty poses a serious threat to the overall development problem of the country. The latest census conducted in 1991 put the total population at 855 million, growing at an annual rate of 2 per cent. It is estimated that this population figure will double in 35 years' time unless the growth rate is soon lowered sharply. The question here is how to accomplish this job?

India already had a large population before people realized the magnitude of the problem and even a small and nominal growth rate of population would have continually yielded a large addition. Hence, a part of the explanation of the country's high rate of population growth lies in her formerly relatively high birth rates and recently rapidly declining mortality rates

Much progress has been made since the Indian family welfare programme began offering family planning and maternal health services in 1951 In its 40 years of family planning efforts, the programme has seen a steady decline in the total fertility rate from 5 8 in 1951-56 to 3 9 in 1991 Furthermore, the contraceptive prevalence rate rose from 22.7% among all couples of reproductive age in 1981 to 42% among married women in 1991 Despite these impressive statistics, however, India is faced with a birth rate of 31 per 1000 population, death rate of 10 per 1000 population, infant mortality rate of 95 per 1000 live births, an urban growth rate of 3.8%, and a family planning programme that continues to emphasise permanent over temporary methods The Population Crisis Committee of Washington, D.C., has reported that while 85% of couples in India have access to sterilization, only 60% have access to condoms and 40% to pills and IUDs These figures are indicative of a national programme that has emphasised sterilization

Most analysts of Indian fertility transition have focused on the links between socio-economic status and the use of family planning using a conceptual model in which social and economic status are seen to influence fertility outcomes through their influence on the proximate determinants of fertility, e g., age at marriage, breast feeding, contraceptive use, and length of pospartum abstinence According to this approach, higher levels of female education, lower levels of infant mortality and consequent reduction in demand for children are all highly correlated and associated with greater use of contraception and subsequently, lower fertility. Along this line, anthropologists have addressed the question of how women's status affects fertility by examining variations in women's autonomy, control over household resources, and roles in decision making especially family planning decision making.

The role and status of women include a variety of such issues as kinship and domestic organisation, the legal and political status of women, the differing role of the two sexes at home and in society, and family size. In the case of rural north India, anthropologists have argued that the patrilineal kinship and patrilocal residence patterns of the Indo-European north place greater limitations on female autonomy than the different kinship and residence patterns of the Dravidian south. As a result, north Indian women are less immune to pronatalist pressures and less free to control their own fertility and, therefore, have more children

A contrasting view is presented by the fact that patrilocal residence is only one component of patriarchal structures that support high birth rates by reducing the status of women The other components include marriage and kinship systems that isolate women from their natal kin, and a sexual division of labour that leaves women dependent on men It has been observed that the low status of women and their economic dependence on men in areas of high patriarchy, such as north India, increases fertility by increasing the preference for sons.

Among the socio-economic indicators strongly associated with fertility decline is improvement in the status of women. As it is, women in India are last in line for education, job training, credit and sometimes even food. Although there has been a slight decline in fertility rates in recent years, due, in part, to a rise in the age of marriage and the adoption of modern contraceptives, the other socio-economic conditions for fertility decline, viz., adult literacy, infant mortality, life expectancy, etc have not significantly improved.

Infant mortality is one of the causes of persistent high growth rates of population. Nowhere in the world is there a high family planning acceptance along with high infant mortality rates The public perception of a high infant mortality rate results in many people having three or four or more children so that they will have at least two, even if some children die In such a scenario, the parents' desire for children, especially sons, acts as a barrier to bringing down the family size. Thus, while population explosion in the developing countries is the product of many factors, particularly of the general fall in the death rate, a further decline in the death rate in the form of infant mortality rate may be helpful in the slowing down of the population growth

The major continuing problem of the Indian population scene, however, has been an emphasis on family planning at the expense of maternal and child helath care, and terminal sterilization at the expense of temporary methods of contraception While there is evidence that family planning programmes can contribute to fertility decline even where development levels are low,such as in Bangladesh and Senegal, there has to be dynamic social and economic programmes to induce family planning programme to facilitate spacing of fertility and, finally, reducing the size of family

Indeed, the Government of India and the various State Governments have introduced many such programmes—many of them especially meant for the female sex, e g , the Women's Development Programme of the Rajasthan government mentioned above, whose articulated objective is to empower women through communication of information, education and training and to enable them to recognize and improve their social and economic status. However, these programmes have not been tapped for their fertility reducing potential Moreover, any attempt at empowering women is preceded by providing basic education to women which, at present, is lacking in India.

Of late, though, the Government in principle has been active in exploring a "beyond family planning" approach to fertility control, as it is evident in our present economic reorganization which emphasises a need to concentrate on basic education and health rather than devoting State resources to direct economic activity. However, less attention has been paid to the detailed strategies for the implementation of new policies than to the development and refinement of the policies themselves. The non-governmental organizations come into picture in this connection who, capitalizing on the commitment of their staff and their knowledge of the communities they serve, often succeed where the Government cannot

Mention may be made here of a study on Gujarat in 1991 entitled "Reaching Urban Women with Family Planning Services by the Gujarat State Crime Prevention Trust—a local women's NGO—jointly sponsored by the USAID and the Center for Development and Population Activities of Washington, DC The Trust had a long history of social welfare work in the slums but no experience in family planing The conditions facing the slum populations of Ahmedabad are similar to those in other urban slums of the country—unrelenting poverty, extremely limited access to health and family planning services, poor to non-existent water, electrical and sanitation facilities, and high rates of illiteracy.

Women of all economic levels in the Ahmedabad slums are largely illiterate and uninformed about their own health and reproductive needs They adhere to traditional beliefs and practices, including a preference for large families and male children. Their desire for old age security and economic insurance dictates their fertility. Moreover, husbands and

mother-in-law exert strong influences on the women's reproductive decisions, and fears about the side effects of modern contraceptive methods are prevalent To cap it all, the official heavy emphasis on sterilization has sent inaccurate and intimidating signals to potential clients that family planning should be used for limiting rather than spacing births.

Against this background, the Trust's family planning project was designed with three principal goals in mind. first, to improve residents' knowledge and attitudes about modern methods of family planning through user oriented IEC (Information education and commumation) activities; second, to attract younger, low parity women by emphasizing the health and eocnomic benefits of spacing birth and delaying first births, and third, to lower the birth rate and eventually reduce fertility among the economically deprived slum dwelles

The Trust believed that the slum women, given accurate and culturally appropriate information and support, would accept family planning as a means of improving their lives and those of their families In its campaign to improve the quality of life for slum dwellers, the Trust has organized a wide variety of social welfare programmes, including 30 adult education centres, 4 preschools, 12 day care centres for children of working and ailing mothers, a child guidance centre for adolescent school drop-outs, and 2 family counselling centres

The Trust has successfully completed its task of family planning in just three years (1987-90). It has helped raise the contraceptive prevalence rate in the slums to 58.6% to equal that of Ahmedabad city and increase the use of temporary methods to exceed that of sertilization The project has shown that illiterate urban slum dwellers, globally recognized as presenting the greatest challenge to family planning programmes, can achieve a level of contraceptive use similar to that of their more fortunate counterparts when provided with appropriate service delivery methods. One factor that contributed to the success of the Trust's project was its emphasis on promoting temporary methods of contraception in sharp contrast to the Government's bias towards sterilization

It has been found that inaccessibility of services and poor knowlede of birth spacing mehtods lead to more women accepting the Government's sterilization programme. A survey on the contraceptive use in Gujarat, conducted by the Population Research Centre of Baroda in 1991 reported that low or no education and acceptance of sterilization go together. The main reason is that less educated women are less likely to use either the IUD or the pill. Another survey which complemented this finding was conducted by the Indian Institute of Management Bangalore in Karnataka in 1991 which found that sterilization was common because women knew little about other methods of contraception.

The Gujarat State Crime Prevention Trust's success with family planning project indicates that to be a success, the programme has to be comunity based and community participation is essential. Education helps women to seek more information and health care that can improve their lives, including fertility regulation Additionally, improvements in the quality and extent of services can help reduce fears and misconceptions about contraceptives and thus increase their use. The NGOs can play an important role in this effort Unfortunately, the government has allocated to the NGOs only approximately 1.5% of total annual family welfare expenditures This is a reflection of poor mechanism in collaboration in an important sector of our total development programme. □

The author is an anthropologist

(Contd. from page 12)

G. Personnel Policies and Administrative Structural Reforms

In the sphere of personnel and administrative structure, the Committee recommended certain measures. The Important among them are as under·

(i) The two Boards viz., the Central Board of Direct Taxes (CBDT) and the Central Board of Excise and Customs (CBEC) should be accorded financial autonomy, (ii) The Chairman of the two Boards should be given the status of Secretary to the Government and the existing post of Revenue Secretary should be abolished, (iii) The Finance Secretary should exercise overall supervision and co-ordination particularly in relation to the formulation of tax policy and changes in the tax law, (iv) A Tax Council with Finance Secretary as Chairman and with the Chairmen of both the Boards, Secretary (Economic Affairs) and the Chief Economic Adviser as members may be set up All matters relating to tax policy and changes in law should be referred to the Council The Commiette suggested establishment of a Tax Research Bureau to assist the Tax Council in policy matters. The Committee also suggested measures to improve the quality of officers by imparting training and other welfare measures. □

(Courtesy: RBI)

Probing Schemes To Benefit Rural Women

V. Varalakshmi

IN a majority of development programmes, involving women has become extremely important to ensure their successful implementation. To support the involvement of women, provisions in the policies and rules have been made to emphasise this need and provide for legal backing. Experiences from Haryana where the Haryana Forest Department (HFD) is protecting and managing the forests with the cooperation of the local village communities under the Joint Forest Management Programme, reveals that just these provisions are not adequate to elicit response from women

On the other hand since women are most sensitive and highly dependent on forest resources and whose burdens, attempting to gather fodder and fuel wood from highly degraded and almost non-existent vegetation get multiplied with every extra hour that they have to spare for these activities, from their otherwise extremely burdened lives, addressing their problems and finding solutions through different programmes is very important

Special efforts are required to find solutions to these problems that women face in generating income or resources for sustaining their families The problems that women in the interior remote regions have to face, both social and economic, are more acute than the more accessible villages. Attempts at their uplift and alleviating their burdens require an integrated approach by all the Government departments implementing various developmental programmes in these villages Pooling of resources meant for socio-economic development of women by all these agencies would, in all probability help in making a head-way into the betterment process of these rural women

The case presented here is indicative of the ineffectiveness of finding solutions for reducing the dependence of women on forest products which are their only source of income, without providing alternative from sectors other than forestry The funds available with the Haryana Forest Department are definitely inadequate to help women in the 164 odd villages which form part of the Morni Hills discussed here who face similar problems One of the villages, Mandhna, has been discussed in depth

Fourteen different forest areas comprise the Morni Hill tract These forest areas named after the Bhoj's or Revenue estates, have about 164 villages nestling in their midst as per the revenue records Major part of the Morni Hills forms the catchments of Ghaggar, Dangri, Som and Markenda rivers. Till 1968, these forest areas formed the private estate of *Garhi Kotaha* Mir (title given by the British) family.

During the period 1968-74, the Government of Haryana acquired as much as 50,807 acres out of a total of 59,998 acres of forest area in the Morni Hills and declared it Protected Forest and terminated many rights and encroachments upon this area However, based on the revenue department's records or *Jamabandi*; agricultural land, habitations, and religious places were excluded from acquisition. The object of Forest settlement was to demarcate the Morni Hills into Reserve Forest (with no rights for the local people) and Protected Forest (with limited rights for collection of fodder, dead and dry wood etc) However, this demarcation process remains incomplete

Of the 164 villages in the Morni Hills, Mandhna is one such village which is made up of seven Vas (hamlets), namely (i) Siraka Vas (ii) Jansu Vas (iii) Gabla Vas (iv) Panditan Walla Vas (v) Chandhian Walla Vas (vi) Jhathar Vas (vii) Harian Walla Vas The agricultural land in the village is meagre with individual holdings ranging from 0.1 to 1 6 acres The production from the agricultural fields is inadequate to meet the domestic requirements of grains for the individual families, because apart from the holdings being uneconomical, majority of this is unirrigated

The earthen water harvesting structure constructed at Barahal village by the HFD irrigates very little of Mandhna's agricultural land essentially because the delivery pipe is faulty and is not along contour lines which impedes the conduction

of water to the agricultural land belonging to the entire village The result is that only about two acres of the land belonging to Mandhna villagers is irrigated It seems impossible that this pipeline would be realigned to make it fully operational looking at the high cost involved, which the HFD can ill afford Also the highly cut-up and degraded catchment has silted the dam, leading to a reduction in its storage capacity and weakening it.

The village is almost totally cut off from the town and commercial centres. Majority of the menfolk in the village are on daily wages, and the employment offered by the HFD is a boon to the men who otherwise have to walk long distances in search of work. Earlier, when the hills were well forested, the villagers used to sell leaf plates made of *Bauhinia vahili* leaves at the nearby market and supplement the family income. But with the forests having receeded and become sparse, these trees are now found on steep slopes and on hill tops, making the collection of these leaves almost impossible

With very little money available to meet the food requirements of the families, fuelwood and fodder are collected from forests With the men engaged in labour from dawn to dusk the responsibility is totally on the women. With each family having a maximum of one to three milch cattle, cowdung as supplement to fuelwood is not available and an option like biogas as an alternative energy source is totally ruled out

The village had traditional rights in the forest area nearby for years but with the acquisition of this forest land by the HFD many of these have been curbed. More importantly status of forest area around the village is absolutely degraded. Fuel wood and fodder is still collected from forest area. Wood of *Anogeissus latifolia* and *Terminalia tomentosa* are burnt as fuelwood.

Impact On Women

The problems related to collection of fodder and fuelwood are solely the burden of women These women go in groups to the forests which have receeded from the villages to large distances. Every second day women go in search of fuelwood and fodder. Significant difference in this situation is that it took the women about one hour in the 1970's, two hours in the early 80's and four to five hours today to collect one headload of fodder and fuelwood Distance to be covered has likewise increased from two km to nine kilometres. Vegetation and grass is available now either on slopes which are steep or on hill tops. These areas are quite inaccessible to women. Women from all households irrespective of castes and land holding class are forced to perform this task to keep the hearth burning. These women have very little time for themselves as they also have to work on the meagre lands that they own as the men find little time to devote to cultivation on agricultural lands

Before the forest settlement, the Mir had given villagers rights to forest area and villagers had put the land on slopes for terrace farming Thus each family had substantial land for agriculture and the economic position was better But with termination of all rights of villagers on these terraced slopes, locally referred to as *Natod* lands, the land crunch has become severe. And with this, there has been a manyfold increase in the burdens that women have to face. With little or no irrigation water available, agricultural production is extremely low Further, with non-availability of fuelwood and fodder, the pressure is even high as very little agricultural residue is available to be used as fuelwood or fodder.

Possible Solution

Women in the village want access to money. They feel that if they have access to work, they would find time out of their daily chores and add to their family income. More importantly they want something to be done to stop further degradation of forest and slopes. They feel that if the HFD, through their Social Forestry or other Programmes undertake afforestation, soil and water conservation works, enrichment planting etc , in the vast degraded tracts of Morni hills, women would not only contribute to it but would also extend cooperation in regulating use of forest areas. This would help in the stabilisation of hills and help in regeneration of vegetation in the area

Some of the important considerations while finding solutions to such problems is that Mandhna is one of the many villages where such a problem exists and needs immediate and durable solutions. The whole of Morni hills tract requires to be rehabilitated. Often solutions concerning pressure on forests produce like fodder and fuelwood which forests can ill afford, are found through forestry programmes and Forest Departments. Budgetary allocations to this sector being quite inadequate to warrant implementation of such programmes, different welfare schemes and those meant for the uplift of women would have to be tapped.

Emphasis would then have to be on investigating the various State or Centrally sponsored schemes with good budgetary allocation in Five Year Plans or annual schemes so that these can be sustained Institutions like Mahila Mandals are as good as defunct in these villages because of little financial backing Other programmes undertaken by the State for uplift of women have to be explored. Once these options are drawn out, the feasibility of each can be assessed based on field situation to draw out a final plan. □

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Child Care In India: Emerging Challenges

Dr. C. Gopalan

EVEN with the existing levels of poverty undernutrition and inadequate health care, a significant impact on health/nutrition status of mothers and children in the country can be achieved by bringing about a rise in the age of marriage of our girls. I had earlier suggested that imaginative incentives like a "delayed-marriage bonus", "delayed-maternity bonus" may be offered to the poor in order to achieve an increase in the average age at marriage and in order to delay the onset of the first pregnancy till the 21st year Such a programme must go hand in hand with a programme of broad-based "education for better living", and vocational training beamed to adolescent girls both within and outside the school system. A good proportion of girls drop out of schools by their 9th or 10th years. This underscores the importance of educational programmes outside the school system. Such educational programmes could become attractive and acceptable if they are coupled with programmes of vocational training which serve to impart income-generating skills and to improve the overall competence and self-confidence of young girls. These are difficult programmes to implement but we cannot continue to shy away from these efforts any longer.

Anaemia: There are other compelling reasons which point to the need for major attention to the adolescent phase of growth.

Iron-deficiency anaemia is a major factor contributing to maternal morbidity and mortality and low birth weights of offspring. It is not as if anaemia in our women sets in **after** they become pregnant There is a great deal of anaemia in children and more especially in adolescent girls. A study reported in 1982 for example showed that among girls less than 15 years of age, 65% in Hyderabad, 69% in Delhi and 97% in Calcutta had hemoglobin levels less than 11 gm% The present procedure for combating anaemia in pregnancy as part of antenatal care consists in the daily administration of iron/folate tablets, given in the last 100 days of pregnancy strating from 20-24 weeks of pregnancy.

A recent ICMR study showed that at 20-24 weeks of pregnancy at least 17% of women had hemoglobin levels less than 9 gms%. The same study also showed that even when iron folate tablets at high levels of dosage (120 mg iron and 180 mg iron as against 60 mg) were administered regularly for 100 days, hemoglobin levels could not be raised to beyond 11 g% in women whose initial hemoglobin levels were 9 g% or less This would show that even with the most intensive and efficient iron/folate supplementation programme confined to the last 100 days of pregnancy, the problem of anaemia in pregnancy will not be successfully combated in a good proportion of our women. Considering that in real-life situations in our public health system only 17% of PHCs were able to achieve more than 60% coverage with respect to iron folate distribution in the last 100 days of their pregnancy, it must be clear that the present strategy for combating pregnancy anaemia is wholly inadequate.

Iron/folate tablets should be made freely available to adolescent girls in the countryside. The intake of these tablets by adolescent girls, and certainly by married girls, could be actually promoted through an intensive programme of education undertaken as a part of a broad-based programme of "education for better living" beamed to adolescent girls. With this strategy, even if the supply of iron folate tablets is irregular and cannot be rigidly ensured on a daily basis, the chances of our being able to mitigate the anaemia problem would be far brighter The proportion of girls who would be anaemia even before the onset of pregnancy may become far less.

The solution to the problem of anaemia, as indeed to other problem of undernutrition, cannot be allowed to be wholly dependent on drugs and tablets. It is important to emphasise the need for dietary improvement; and dietary improvement can be achieved without much additional cost to the family through the wise and judicious use of inexpensive locally avaiable foods. This is an aspect which is currently totally neglected in our antenatal health care programmes Indian diets are predominantly cereal-based and are likely to remain so In such diets the absorption of iron is bound to be poor. Fortunately, however, this situation can be significantly improved by the inclusion of locally available green leafy vegetables in the diets. Green leafy vegetables are good sources of Vitamin C which promotes absorption of iron; they are also good sources of folic acid which helps to combat anaemia.

They are often good sources of calcium which the adolescent girl in particular needs. More than all, they are also rich sources of B carotene—the precursor of Vitamin A. The logical way of preventing vitamin A deficiency in the infant is to build up the Vitamin A nutritional status of the mother during her adolescence and pregnancy through dietary improvement—consisting mainly in the inclusion of green leafy vegetables and other carotene-rich foods in the diets. A good part of the Vitamin A stores of the infant are derived from the mother during the latter stages of pregnancy.

Unfortunately in our eagerness for shortcuts, we have depended on massive doses of synthetic Vitamin A to the infant as an answer to the problem of vitamin A deficiency, rather than on—the logical approach of improving the nutritional status of the mother during the pregnancy and adolescence. This aberration needs to be corrected

Mobilisation Of Youth

There is an urgent need for a broad-based programme of "education for better living" and vocational training beamed to adolescent girls in the countryside Indeed this must become part of a massive movement for the mobilisation of our youth for programmes of national health uplift A National Health Scout movement which seeks to involve the youth in programmes of community health/nutrition will pay rich dividends. The ICDS system has made a small beginning in the matter of involving adolescent girls with *anganwadi* programmes, but this needs to be greatly expanded.

The unique aspect of the ICDS has been that the *anganwadi* workers were conceived of as volunteers and representatives of the community ICDS may lose this unique feature which was its major asset if as it now appears the *anganwadi* worker becomes a regular salaried government servant and a part of the establishment and the bureaucracy. Under the circumstances, it will be good strategy to develop a system whereby a panel of trained health scouts drawn from the youth of the village and from the rural schools is entrusted with the task of looking after anganwadis by turns. This will not only be valuable training for the youth, but this also help to save for the ICDS its unique feature of voluntary service.

The Yuvak Mandals and clubs under the Nehru Yuvak Kendras which are in existence in most districts of the country could be encouraged to spearhead a massive youth movement for the uplift of community health/nutrition. The item of "Socially Useful Productive Work" (SUPW) which is now compulsory for all students from class IX could be imaginatively used to promote a National Health Scouts Movement.

Through such imaginative steps and by judicious utilisation of the existing institutional infrastructure, we may be able to impart a new dynamism and enthusiasm for health uplift and Child Development Programmes in the country, we may also be able to equip the adolescents of today, the mothers-to-be who will usher in the generation of tomorrow, for efficient motherhood and productive citizenship.

The School Age

There was a time in the fifties when school meal programmes and school health services commanded considerable attention. However, the interest in this area of child Development waned in the sixties with the emphasis shifting to the pre-school age-period (the toddler stage—under fives) as being the crucial phase of Child Development. Indeed the near-exclusive emphasis on the "pre-school child" had also resulted in diminishing attention to the mother. In the attempts to "reach the pre-school child", the mother receded to the background. On-the spot supplementary feeding programmes directed to under-fives came into fashion and the concern here was to ensure that the mother did not get the food supplement which she might have wished to be shared by other children in the family—an example of the ridiculous distortions in Child-Development strategies in recent years

It is true that the worst forms of malnutrition afflict the pre-school child, but it is also true that there is a great deal of morbidity and learning disabilities among children of school age because of which heavy investments in primary education programme have not had the desired impact Care of school-age child is not only important in itself, also the fact that the school system offers an excellent country-wide net work and entry-point for a comprehensive health programme beamed to a crucial segment of the population cannot be lost sight of School children, properly motivated and educated can become useful agents of change and can provide fillip to movements for community uplift

The Nutrition Foundation of India had pleaded some years ago for the introduction of a National programme of Nutrition and Health Education through the Rural School System. The school system, if wisely used, can become a valuable "Second Front" in the battle against ill health and undernutrition, and could thus become a valuable adjunct to the conventional Health Care System.

The Tamil Nadu Nutrition Programmes are currently based on Schools. However, a comprehensive school Health Service must include besides school meals, other components as well—namely, health/nutrition education for children and the community, and programmes for the improvement of school-environment. Indeed the school and the school

teacher could become the nodal points for community action programmes in the field of health/nutrition. Through an imaginative programme beamed to schools and through the schools to the community, we may succeed in not only reducing drop-out rates but also in improving learning ability of children, and in augmenting community health care. A school Health Service, in order to be meaningful, must be backed by a strong Referral Service This would call for cooperation between the Health Sector and the Education sector. Since inter-sectoral coordination for community uplift programmes seems to be a rare commodity in our administrative system, it is not surprising that school Health Service Programmes continue to languish

Our primary schools, especially in rural areas are grossly underequipped It is not surprising that drop-out rates are high Intelligent parents probably feel that their children do not stand to gain much by attending poorly equipped schools run by poorly motivated teachers Rural school teachers often fail to inspire confidence in their students or their parents Heavy investments on school health/meal programmes will be justified only where basic minimal educational standards in our primary schools can be ensured A school meal programme should not be used just as a bait for parents to send their children to school A not unusual experience in many schools with school meal programmes is that attendance is full and satisfactory only at meal times! There is an imperative need for an all-round improvement in the quality of our rural schools (not just an increase in their numbers) Only with such improvement can they make the contribution to National Child Development that is expected of them.

Pre-School Child

During the last few years, child health/nutrition programmes directed to pre-school children have received considerable attention. The ICDS, the Tamil Nadu Projects, the Universal Immunisation programme, the Diarrhoea control programme are all directed to the protection of this group There has been a significant decline in the incidence of severe malnutrition including nutritional blindness during the last few years However there is still a great deal of growth-retardation This is perhaps to be expected because while we had vigorously pushed strategies for control of child mortality, these had not always gone hand in hand with strategies for the promotion of child nutrition Devices such as ORT no doubt help to avert deaths but not to correct malnutrition induced by repeated episodes of infection

Ongoing urbanisation will pose a major challenge to child health It is expected that by 2000 AD, there will be as many as 10 crore of our population living in urban slums and underfives in urban slums will roughly number 4 crore

Breast feeding has been the sheet anchor of infant nutrition in our country Despite their poor health/nutrition status, our poor women had always followed the salutary practice of breast feeding their infants at least for the greater part of their infancy But for this, the state of infant nutrition in the country would have been far worse than what it is today. There is the real danger that breast-feeding will come under serious threat in the urban setting Many of the women in urban slums, unlike their rural counterparts, will be working outside their homes, and that in the unorganised sector wherein they may not be entitled to maternity benefits. Under the circumstances it will not be surprising if they find themselves unable to breast-feed their infants regularly beyond the first fortnight or month of infancy.

Families could be increasingly compelled to depend on street foods which may not always be hygienic, especially since existing arrangements for enforcement of food standards are highly inadequate. There could be an escalation of diarrhoeal diseases in children and consequent aggravation of undernutrition and growth retardation Child health care in urban slums will, therefore, make increasing demands on our health system in the next few decades. Appropriate institutional arrangements and progammes for meeting these emerging challenges to child health will need to be initiated soon

The universal immunisation programme has been implemented with considerable success in some parts of the country However, the major flaw with respect to its implementation has been that the programme was pushed not as part of integrated child-health care but as a narrow vertical programme In the anxiety to achieve immunisation targets the programme was not availed of to offer a package of health care services to mothers and children It is heartening to note the Ministry of Health has now decided that in the "child survival and safe motherhood programme" now being attempted such mistakes will be avoided

Comment

It may be useful in conclusion to consider briefly some major organisational factors which have hampered our efforts in the area of child development in recent years

There has been a great deal of wasteful overlapping and lack of coordination with respect to many child health programmes in the country. For example, at least in its initial stages, not only was the vast Tamil Nadu Integrated Nutrition Project conceived and operated in isolation from the country-wide ICDS net work, there was also little interaction and exchange as between

that project and the even more massive Noon Meal Programme (The Chief Minister's Programme) in the very same state! It appears that there could also be considerable overlap between the "safe motherhood and child-survival" programme now proposed by the Health Ministry on the one hand and the ICDS on the other. It is fortunate that the wastefulness involved in such uncoordinated exercises is now being recognised. The "enriched" or "expanded" ICDS programmes now being implemented with the incorporation of useful components of different programmes make more sense.

Such wasteful duplications occur because there is no mechanism for effective coordination and direction of Child Health/nutrition programmes in the country. Important programmes like those for anaemia control, goitre control and vitamin A deficiency prevention, and now, "safe motherhood and child survival", are the "babies" of the Health Ministry ICDS is the programme of the Women and Child Development Ministry. The states have their own separate programmes. However, what is unfortunate is not the fact that a multiplicity of agencies are thus involved in the operation of child health programmes, but the fact that there is at present no arrangement for inter-sectoral coordination to ensure that these programmes reinforce each other instead of frequently functioning at cross purposes.

What is also unfortunate is that in the departments which are now responsible for implementing major child health/welfare programmes, technical expertise is either non-existent or (with some exceptions) of poor quality. Where such expertise does (or did) exist it has been either attenuated or marginalised. The result has been a general erosion of credibility and efficiency. This has been a sad case of "cutting the nose to spite the face".

There is a vast reservoir of scientific expertise of the highest order in the fields of child health/nutrition within the country; there is also a vast reservoir of rich administrative experience within our bureaucracy. Arrangements for smooth coordinated functioning which will provide full opportunities for both technocrats and bureaucrats to contribute their best to the uplift of the children of the country, will need to be forged. Scientists of the country and major institutions in the field of child health and nutrition are today playing at best only a peripheral role in national child development programme. They are not involved in decision making. National scientific institutes in the fields of child development, health and nutrition must be allowed to function and contribute their best as autonomous institutions, and not be unduly cramped and fettered by unnecessary bureaucratic shackles. This will help both scientific development and programme implementation The objectives of Health, Nutrition and Child Development are far too precious to be jeopardised or compromised by short-sighted self-defeatist, empire-building exercises. States-menship and wisdom demand that the rich scientific and administrative talents available within the country are wisely blended for the common good of the Nation

International Agencies like UNICEF and the World Bank have, in recent years provided valuable support to Child Developmental Programmes. We can make good use of such support wisely for maximal national benefit only if we put our house in order, and effectively harness our own expertise and internal resources.

Despite frequent lip service to the importance of community participation we have not really succeeded in enlisting the informed participation of the community in health, welfare and child development programmes. This has resulted in lack of accountability and poor utilisation of available services. The present psychological divide between the provider and the consumer needs to be bridged. Some of the steps suggested earlier such as the organisation of a National Health Scout Movement, the involvement of rural schools in community uplift programmes and a broad based non-formal education programme beamed to rural youth, specially the girls and youngmen, could transform the situation. I had earlier offered detailed suggestions for community organisation for health care. Through such community organisation we may be able to bring about meaningful functional integration and reinforcement of the multiplicity of welfare programmes meant for rural communities.

All these considerations point to the crying need for a "National Resource Centre for Nutrition and Child Development" which can provide technical back-up and facilitate interlinkages between national nutrition, and child development programmes being implemented by different Ministries such as Health, Food, Education and Women and Child Development. The setting up of such a Resource Centre need not necessarily supplant existing technical expertise in the various Ministries. Such a Resource Centre must be composed of the best scientists in the area of nutrition and child health, and could be advantageously located under the Prime Minister—not necessarily as part of his secretariat. This arrangement will provide the much needed leadership, prestige and authority to child health programmes in the country. Nutrition and child health programmes, by their very nature, will need to be implemented in different administrative sectors—Health, Women and

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Industrial Backwardness Of Kerala—A Diagnosis

Jose Jacob

KERALA'S industrial backwardness is a matter of serious debate. As per the 1991-92 estimates, the number of job seekers registered in the employment exchanges crossed 39.6 lakh. It is about 37.5 per cent of the total population in the age group of 15 to 35 and about 13.6 per cent of the total population in Kerala.

The share of manufacturing sector in Kerala's state domestic product was 14 per cent in 1980-81. But it declined to 13.16 per cent in 1985-86, and to 12.25 per cent in 1990-91. The share of agricultural sector in the State's annual income also came down from Rs 599 crore in 1981 to Rs. 588 crore in 1991 in constant prices It is interesting to note that while in most of the Indian States the share of industrial production in the total annual income has progressively been on the increase as a natural consequence of general economic progress), Kerala has been experiencing a reverse trend

Neither is Kerala's position any better in regard to the proportion of industrial workers. Industrial workers comprise only 2.44 per cent of the total population

In regard to the generation of value added in the industrial sector the ratio in the country's total industrial production has increased 5.6 per cent during the period 1970-71 to 1980-81, and by 1989-90 it recorded a further growth of 6.3 per cent For Kerala, the figures for the corresponding periods were 3.06 and 2.98.

Studies have shown that the non-availability of capital is not at all a factor adversely influencing the industrial growth of Kerala. Annual Foreign remittances to the State alone amounts to Rs. 1,000 to 1,200 crore. But the major share of this amount is being spent in activities which are neither productive nor employment generating.

There has been arguments from some quarters that Keralites, in general, lack interest in industrial enterprises and bear little aptitude for making commercial investments in the industrial sector.

But it is pointed out that investors from Kerala have been investing large amounts in such occupations as cinema, retail trade, and even in illegal money lending which are characterized by greater financial instability and risk of loss. Hence, alternative explanations are to be sought elsewhere for the relative industrial backwardness of the State However, a noteworthy feature of investment chosen by Keralites are characterized, in general, by being capital intensive

Though Kerala can not boast of an entrepreneurial community, it has a growing number of people interested in multifarious business enterprises. Also, strangely enough, Keralites exhibit an increasing concern to migrate to neighbouring States on challenging industrial ventures.

Central Investment

Arguments are being advanced that the smallness of the share of central investment is a major factor responsible for Kerala's relative economic backwardness. This proposition, however, seems to be highly misleading and diverting the attention from the real and live issues relating to the tardy industrial growth of the State. The above school declines to take into account of the fact that economic development of a particular region or economy depends upon the degree of productive and efficient use of local resources, and not merely on large scale investments which lack enough linkages to accelerate further investment opportunities. Large investments, in fact, have caused more harm than good. Besides their serious environmental risks, they pose high social costs as a result of the unscrupulous exploitation of irreplenishible natural resources, high rate of energy consumption, low employment potentiality etc

The case of Bihar could be cited to disprove the argument that large scale industrial units and central sector units are the *sine quo non* of economic progress. As per the latest comparable data for 1989-90, although 8.5 per cent of the total central investment was made in Bihar, it lags behind even to Kerala (its corresponding figure of central investment was 1.57 per cent), in respect of income, and other important indices of life and economic development.

As on 31 March 1990, Kerala had a total central sector investment of Rs. 1701 crore spread out in 18 industrial concerns. The total number of employees in these enterprises are around 26,500. This means, an amount of about Rs. 6,40,000 was required to fetch employment to one person in this sector. During the same year the state had about 73,000 active industrial units in the small

and medium scale sector with approximately a total investment of Rs. 730 crore, employing 4.45 lakh workers. The capital/labour ratio, therefore, is just about 16,500 These figures support the argument that central investment and/or large scale industries cannot be considered as a panacea to remove problems of unemployment and low per capita income in the State, and to achieve economic development

Power Crisis

The per capita consumption of electricity in Kerala is one of the lowest in India i.e , 148 kwh vis-a-vis 217 kwh in the all India (GOI, 1990) As far as the industrial supply of electricity is concerned, the shortage as well as the non-reliability in continuity have adverse impact on the industrial growth of the State. The share of energy requirements of the industrial sector of Kerala met out of electricity supplied by Kerala State Electricity Board (KSEB) during the year was, on an average, about 55 per cent A research study conducted by Prof M A Oommen had shown that the outage cost borne by the large scale industrial sector of Kerala in 1991 prices was about Rs. 25,000 crore per annum.

It is also pertinent to note that Kerala has not been giving the attention to the development of industrial sector in the plan allocation It appears in the present context that, things have become increasingly difficult for Kerala to successfully compete with other States with respect to industrial production and in marketing, as they have gone much ahead in industrial progress.

Potentials

It has been estimated that in Coimbatore district of Tamil Nadu alone nearly 1200 industrial units of diverging nature and scale, owned by industrialists from Kerala have been functioning in the year 1990-91. Another case in point is the Cochin Stock Exchange which has grown upto become the third largest of its kind in India within just six years of its inception The amount of per day financial transactions of Cochin Stock Exchange is estimated to be as high as Rs 1,500 crore in 1991-92 But over 92 per cent of the shares transacted in the market is that of companies from out side the State This results in the draining off of potential resources of the state economy.

Industrialists in Kerala have to import technical knowhow, machinery and also a larger share of raw materials from the comparatively industrially advanced neighbouring States. Hence, obviously, the competitiveness of the industrialists of Kerala, especially at the initial stages of production, compare with their counterparts in other States is weak as much as the latter is in a better position to make goods available at a lower market price Although some incentives in the form of tax concessions, credit facilities, low electricity charges etc., are offered, it proved to be quite insufficient to combat the comparative disadvantage of industrialists of Kerala.

It has been estimated that consumer goods worth about Rs. 15,000 crore are being imported annually to Kerala from out side the State. In terse, it may be concluded that the State has not been successful in capitalizing the multiplier effects resulting from the larger market for industrial output and huge amounts of remittances from abroad.

One of the basic factors underlying economic growth is the stability in governance and polity Perhaps, no other State in India has seen so many changes of governments as in the State of Kerala Since its birth in the year 1956, it has been ruled by 15 ministries The failure to develop a sound and stable industrial policy in the State may mainly be attributed to the fact that Kerala has had successive short lived governments consituted by diverse political parties with differing political interests and philosophy.

A long term policy with regard to tax rates, industrial licensing, license fees, generation, distribution and pricing of power, loans and subsidies to industrial enterprises, labour relations etc , would, indeed, help to generate a sense of security among the industrialists Further, a sound policy of this kind will facilitate effective investment planning as well Hence the immediate exigency and concern for Kerala seems to evolve a plausible perspective plan for industrial development aimed towards growth and stability Though the State for the first time have brought forth an industrial policy in 1991-92 it keeps mum about many of the crucial aspects such as labour relations, wage rates, supply of essential raw materials, pricing and supply of electricity and marketing of output It retains vagueness in regard to credit facilities and even formalities to be observed in starting an industrial concern

The private sector has a key role to play towards economic growth in a mixed economy distinctively in States like Kerala Almost all public enterprises in Kerala are facing a resource crunch and are incurring chronic economic losses Besides, in the present fiscal scenario, the State is finding it difficult even to bear the expenditure on pay and allowances of its employees Hence further investments in SPSEs is out of question, at least, for the coming one decennial period In this context the role of private sector in State's industrial growth has an elevated relevance

Labour Relations

The labour relations prevailing in the State have been pointed out to be not providing an impelling effect to achieve speedy industrial progress During the period of 1975-91, the per

capita loss of working days of the industrial work force was one of the highest in India i.e., about 3.2 as against 1.45 in all States average. The labour relations in Kerala seem to have hampered the industrial growth from three angles. (1) higher wage rates; (2) lower productivity and (3) Labour unrest and the resultant issues. The first and the third appear to be the direct result of the proliferation of activities by labour organizations lead by political parties. The second phenomenon may need to be explained in the light of other causes as well.

As Kerala has the highest share of skilled and semiskilled unemployed people, it seems that the wage rate ought to remain comparatively low. However, the highly organized labour and the proliferating number of unions have succeeded in wresting higher wages unrelated to the level of productivity and the corresponding national average

Many of the industrialists of Kerala setting up enterprises in the neighbouring States of Tamil Nadu and Karnataka attribute it to the relatively peaceful industrial climate, the lower wage rates and relatively better industrial productivity prevailing in these States It is pointed out that the small scale enterprises are often forced by the organized power of the labour unions to hike the wage rates and other terms of service on par with the large scale manufacturing sector though their productivity, capacity utilization, stage of production, rate of profit etc , are not comparable to that of the large scale units The above tendency has created a situation where not only are few enterprises getting attracted to the State but also that many active units are being forced out of the State This could be seen as one of the causes for the declining trend rate of growth of the industrial employment, especially in the private sector.

Lower Productivity

As per the available data, the average labour productivity in the industrial sector of Kerala is lower than that of the all States average. In the year 1990-91 Kerala's share of industrial workers in the country was about 2.44 per cent, where as its share in the country's industrial production was only 2.08 per cent. Another notable feature is that Kerala's share in the generation of value added in the industrial sector during the year was a meager share of 1 96 per cent. In the year 1982-83 all India average per capita value added in the industrial sector was Rs. 239 while the corresponding figure for Kerala was only Rs 182. In other words, the per capita contribution of the industrial workers of Kerala towards net production stands slightly above three-fourth of the national average On the basis of the above proposition Kerala ranks elevanth among the 14 major States in India By the year 1990-91 the corresponding rank has been lowered further to twelth position The ratio of wages to value added is relatively high in most industries in the State.

In the context of the recommendations of Vittal Commission (Expenditure Commission, Kerala, 1990) as also the ninth Finance Commission to find a workable solution to the present unemployment problem and economic crisis, the State's industrial policy needs drastic revamping A few measures that may be useful towards this end are brought out here for contemplation.

(1) Though the State could promulgate an industrial policy in 1992-93, it lacks many links A thorough revamping of the same commands prime importance for achieving the goal.

(2) The administration of public enterprises of the State may be brought under the direct supervision of a committee of experts from concerned fields and a congenial atmosphere towards the uninterrupted performance without any interaction from external forces may be ensured.

(3) Serious rethinking on whether public sector industrial concerns—which are to be judged on commercial profitability—making chronic economic losses should be shut down or not, may be of immediate and high relevance, particularly in the present phase of financial crisis On the basis of objective evaluation, a thorough shake-up of the basic set-up of management, or if necessary, handing over to co-operative or even to the private sector, needs to be weighed.

(4) In the supply of power and raw materials, priority may be assigned to resource based and/or demand based industries i.e., those industries that use local resources as also produce primarily for the local market.

(5) Tax exemptions, subsidies, loan facilities and other modes of assistance and concessions need to be totally restructured so as to achieve rationality in allocation and production. Concessions of any sort to industrial units making economic losses are in effect, subsidy for inefficiency and mismanagement Such modes of patronage meant to achieve industrial progress may be re-oriented to promote profit-making enterprises

(6) There is need to construct an input-output matrix for, at least, State-owned and Semi-Governmental enterprises, and their purchase policies may be explicitly spelt out with a view to fostering and facilitating other local enterprises and raw material market Purchases from outside the domestic market has to be limited to those items which are not available in domestic market.

(7) The existing institutions meant for industrial promotion need to be reorganized, integrated and brought

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Review Article

Forest Policy And Tribal Development

Dr. T.N. Kitchlu

The tribals have enjoyed the freedom of using the forest wealth for their sustenance since time immororial. The situation changed drastically during the British period who introduced the so-called 'scientific management' of forests mainly with a commercial motive. Various legislations were enacted restricting the rights of forest dwellers. Even after Independence, the forest policy has continued to look upon the forests mainly as a source of revenue. This attitude of the Government can be ascertained from a perusal of the revised forest policy of 1984, 1986 and 1987.

The amendment to the Indian Forest Act is on the anvil. For a long time, a need was being felt for a comprehensive legislation which takes into account the emerging imperatives of the conservation of forests and wild life.

It needs no exhortation that there exists a symbiotic relationship between the tribals and forests. Various measures disturbing this relationship have proved ruinous for both. The new concept of corporate ownership, which is emerging presently, considers the forests as a source of income to the Exchequer and neglects the role of forests in the tribal culture and economy. The problem of deforestation and denudation of forest wealth is a direct consequence of the commercialisation of forests and curtailment of rights and privileges of tribals.

As per the Government reports, the utilisation of forest produce by tribals, though their privilege, has never exceeded 2 per cent of the total extraction of forest produce by all agencies as against 50 to 60 per cent by the Forest Department and 40 to 50 per cent by commercial and industrial enterprises.

The publication brings out in detail the impact of forest policies on tribal development, particularly the economic condition. The study assumes importance in view of the declaration of 1993 as the International Year of the Indigenous people. The book has seven chapters distributed over three parts. Part I contains three chapters on Introduction, Various Forests Acts and Impact of Forest Policy. Part II gives what the Forests in Maharashtra and Findings of Field Work and Finally contours of Long-term Relationship and Summary of Conclusions and suggestions form Part-III of the book.

The investigation has covered 115 households in 23 villages from out of eleven forest circles of Maharashtra namely Amravati, Dhule, Thane and South Chandrapur. A pre-tested schedule was administered to them. Besides, 10 high-ranking forest officials have been interviewed. Some "typical villages" also figure in the sampled villages/settlements.

Tribals constitute 9.19 per cent of the total population of Maharashtra State. According to the author, more than 90 per cent of the tribals live in forests and are concentrated in the Sahya, Satpuda and Gondvana belts. Therefore, there is an urgent need to preserve the cultural identity of the tribals and help them in becoming economically self-reliant. This is in conformity with the declared objectives of the policy of the State Government.

Moreover, Maharashtra is the only State which has a legislation that recognises the right of the people displaced by irrigation, power and other public utility projects to get land according to the Maharashtra Resettlement of Project Displaced persons Act 1976.

It is ironical that commercially oriented forest policy has continued even after Independence. The Forest Policy Resolution of 1952 made no reference to the dependence of millions of people belonging to various tribal communities on forests for their survival. In contrast, it emphasised the need for the realization of the maximum annual revenue.

It is a happy augury that the Scheduled Areas and the Scheduled Tribes Commission criticised the commercial orientation of forest policy at the cost of subsistence of tribal communities living in and near forests. It rightly pointed out that what were "rights and privileges" of forest dwellers in 1894, became "rights and concessions in 1952 and 'concessions' thereafter.

The National Commission on Agriculture, 1976, blamed the forest dewllers for increasing deforestation and recommended abrogation of concessions granted to them. It was

FOREST POLICY AND TRIBAL DEVELOPMENT (A STUDY OF MAHARASHTRA) by Ms. Rucha S. Ghate; Department of Economics; Nagpur University, Concept Publishing Co., New Delhi; pp 219; Price: Rs. 170.

of the view that free supply of forest produce to the rural population and their rights and privileges have brought destruction to the forest and so it was necessary to reverse the process.

The Draft Forest Bill was based on the recommendations of the National Commission on Agriculture. However, the publication of the Bill led to vehement protests from activists working among the tribal communities, environmentalists, scientists and intellectuals. As a result, the Bill was not introduced in Parliament.

The new forest policy which was adopted by the Parliament on December 7, 1988, takes into consideration the symbiotic relationship between the tribal people and the forests. It clearly stated that the principal aim of forest policy must be to ensure environmental stability and ecological balance. It envisages that all the agencies responsible for forest management including the Forest Development Corporations, should associate the tribal people closely in the protection, regeneration and development of forests as well as in providing gainful employment to the people living in and around the forests. The policy also concedes that the life of the tribals and other poor people living within and near forests, revolved around forests. The rights and concessions enjoyed by them should be fully protected. Their domestic requirements of fuel wood, fodder, minor forest produce and timber should be the first charge on forest produce. The new forest policy, if implemented sincerely, will protect the tribal interests and also the forests.

The findings of the field visits made by the researcher to the sample villages has revealed total apathy of the Government towards the basic needs of the tribals. The investigation has revealed that most of the forest villages do not have basic civic amenities like roads, post office, electricity, etc. An overwhelming majority (84%) of tribals are illiterate. Besides insufficient emloyment opportunities, non-availability of food, fodder and fuel are the other problems being faced by the tribals. Moreover, due to the launching of industrial and hydro-electric projects there has been displacement of tribals.

The suggestions and recommendations as given by the author are relevant and deserve attention of concerned authorities. These include local people's rights in forests; due attention to the tribals' needs, afforestation, selective felling of trees in National Forests; processing and marketing of Minor Forest Produce instead of sale of raw materials so as to create employment avenues for tribals and ensure good returns. The rights of forest dwellers over the forest land should be listed and publicised. The management of forests should be done on cooperative basis in which tribals will have equal partnership. □

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under the supervision of industrial experts. Performance of such agencies may be planned on the basis of long term industrial policy perspectives

(8) On matters coming under the authority of the State Government, at least, in the case of small scale and cottage industries, simplification of licensing procedures and speedy disposal of application are of utmost exigency.

(9) Logical criteria for industrial wages should be arrived at based on all India average or that of the South Indian States or consumer price indices or a combination of them.

(10) Short-sighted and narrowly motivated monopolies in labour markets should be curtailed in consideration of wider labour interests The employer's right to select labour to suit the covets of his industrial concern may be acknowledged as important as the right of the employee to accept a particular job or not

(11) Methods of agitation such as strikes have to be banned in all the new industrial ventures in Kerala, at least, for the first few years in view of the relative industrial retrogression and growing problems of unemployment.

(12) Financial incentives and technical supports should be offered to the industrialists who are willing to use newer sources of energy. Similar incentives may be extended to the private sector which would be willing to produce power and are sound in ecological and social terms as well.

(13) Intensive efforts to bring down the losses incurred in the generation and distribution of electricity at least at par with the national average may be urgently undertaken. At the same time, efforts may be initiated to locate suitable energy sources other than hydel power, taking into account the dwindling chances of setting up new hydel power stations, and the ever increasing requirements.

The preceding suggestions do not make up a complete list of remedial measures that need to be taken to save and rejuvenate the industrial sector of Kerala from the invariant revisionary trend. These are but some of the essential ones in the right direction, designed to promote a structural background that would ensure a favourable industrial climate that the State lacks. □

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Book Review

EVALUATION OF AGRICULTURE EXTENSION—A STUDY OF HARYANA by J.S. Yadav; Concept Publishers, New Delhi, 1992, pp. 207.

THIS empirical study on evaluation of the performance of the Training and Visit (T & V) Extension system project is based on the field survey of 160 farmers covered under the T & V (contact farmers) and those not covered under the system (non-contact farmers) The sample is from 87 blocks in the State of Haryana

Multistaged, stratified random sampling research design was adopted for the study In order to evaluate the impact of the T & V both pre-induction and post-induction periods of the project were covered Only those farmers who maintained the farm accounts have been selected Keeping in view of the socio-economic and geo-topologies, the districts are grouped into four zones viz (i) Karnal, Kurukshetra and Ambala, (ii) Rohtak, Sonepat and Jind, (iii) Hissar, Sirsa and Bhiwani and (iv) Mahendragarh, Gurgaon and Faridabad This was done to evaluate the T & V impact in the different settings Rice and Bajra crops from Kharif season and wheat and gram from Rabi season were selected for detailed study.

The study was primarily to find out· (i) the extend to which the adoption level of improved farm practices of the farmers has increased due to T & V system, (ii) the increase in the level of the knowledge of farmers regarding latest farm technologies, (iii) the attitude of farmers towards the system, (iv) the status of farm economics and finally the extent to which project investment is worthwhile.

A systematic description of the ground operational framework, the strategies of agricultural development adopted in the State since its creation, the theoretical and methodological framework of the project appraisal and evaluation, a systematic and lucid description of the research design, concept used, sampling procedures, empirical measures and statistical tools employed in the study and the results and policy implications of the study are dealt with in seven chapters

The major findings of the study are (i) T & V has played a positive role in the adoption of the improved agricultural practices through out the State. However, the impact was found not even across the various zones, (ii) Socio-economic status, education and size of holdings of the farmers also played a positive role in the adoption of the latest agricultural technologies (iii) the benefit and cost ratio of the sampled crops was not found favourable except in one or two zones, (iv) investment made in Haryana on the T & V system has been found worthwhile The intensive exercise by the author for calculating profitability provide an interesting reading

There are some recommendations too (i) the persistent increase in inputs, prices should be arrested otherwise it will affect the adoption level of the farmers adversely (ii) support prices for the produces of sampled crops should be raised to make cultivation of these crops a viable activity, (iii) there must be more emphasis on dry land farming technologies (iv) frequent get together of contact farmers with non-contact farmers should be organized at village level.

This book besides providing the insights of the role played by the T & V in agricultural development of the State of Haryana, tells the inherent problems in the cultivation of the sampled crops. For instances, almost in all the sample crops Cost Benefit Ratio was found unfavourable. Author has introduced some sophistication as he employed Net Present Value, Interval Rate of Return, Pay Book Period and Benefits Cost Ratio to assess the viability and profitability of the T & V project. The methodology adopted in this book is explained lucidly which will be useful to the researchers The findings of the Benefit Cost Ratios of the cultivation of different crops signals reduction of the input prices for making their crops' cultivation viable

The sample size (160 farmers) is too small for generalization across the State The author himself had said " sample of 160 respondent is not sufficient for drawing realistic conclusions " Second it would have been better if average production of three years was taken instead of one year But as this book is an outcome of a Ph D thesis, these problems seem to be unavoidable

Similar types of studies on T & V should be conducted in the other States also □

Dr Mahipal

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Child Development, Food, Education etc It is precisely for this reason that a National Resource Centre of this type become important in order to achieve intersectoral coordination and improved performance Child development is at least as important as Atomic Energy or Space Research No charge can be more important, more prestigious, and more onerous, than the overall responsibility for the promotion of Nutrition and Child Health in the country. This charge must legitimately belong to no less an authority than the nation's Prime Minister. □

Courtesy National Institute of Public Cooperation & Child Development

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The Macro Economic Scenario And Credit Policy

C. Rangarajan

1991-92 was a landmark year in many ways It was a year of crisis, but it was also a year which saw far reaching changes in India's economic policy The crisis the economy had to face in mid-1991 was a grim one The balance of payments situation had deteriorated sharply and the foreign exchange reserves had fallen so low that the possibility of default in payment was imminent Orthodox and unorthodox measures had to be taken urgently to restore our credibility in the international markets On the domestic side while the economy had done extremely well in terms of real growth between 1985 and 1990, the fiscal situation had also deteriorated sharply The fiscal deficit of the Centre alone had touched 8 5 per cent of GDP

The policy changes that were brought into force since July 1991 fall broadly into two categories The first set of measures is part of what is normally known as stabilisation policy The second set of measures comes under the category of structural reforms While the stabilisation policies are intended to correct the lapses and put the house in order in the short run, the structural reform policies were intended to accelerate economic growth over the medium term Structural reform. policies cannot succeed unless a degree of stabilisation has been brought about. But stabilisation by itself will not be adequate unless structural reforms are undertaken to avoid recurrence of the problems faced in recent years.

The new economic policy comprises the various policy measures and changes that were introduced since July 1991. There is a common thrust running through all of these measures The objective is to improve the efficiency of the system The regulatory mechanism involving multitude of controls has fragmented capacity and reduced competition even in the private sector The thrust of the new economic policy is towards creating a more competitive environment in the economy as a means to improving the productivity and efficiency of the system This is to be achieved by removing the barriers to entry and the restrictions on the growth of firms While industrial policy seeks to bring about greater competitive environment domestically, the trade policy seeks to improve the international competitiveness subject to the protection offered by the tariffs, both in the public and private sectors The challenge can be met only if business organisations equip themselves adequately to work in a competitive environment.

It is sometimes argued that the low rate of economic growth in 1991-92 was due to the implementation of the new economic policy Nothing can be farther from truth than this. The low rate of growth was contributed by a poor performance in agriculture and it is well known that the performance of agriculture from year to year is more a function of weather The collapse of industrial production in 1991-92 can be attributed to a large measure to the high degree of import compression that was brought about which would have been inevitable in any case

The economic prospects for 1992-93 appear to be distinctly better. The real GDP growth in 1992-93 may be around 4 per cent, thus taking the economy closer to the Eighth Plan target growth rate of 5 6 per cent The higher growth rate in the current year will be largely attributed to a substantially improved performance in agriculture The anticipated growth rate in agricultural production is around 5 per cent This is in contrast to the decline of 2 per cent last year The overall food grain production is likely to be 180 million tonnes—a substantial improvement from the level of 167 million tonnes last year As regards cash crops, oilseeds, cotton and sugarcane are likely to record an impressive performance.

The trends in industrial production are, however, not that encouraging The index of industrial production during the first four months of 1992-93 rose by 2.1 per cent. There was a distinct improvement in the performance of industrial production in August and September

so that the index of industrial production during the first six months shows a rise of 3.9 per cent. This is in contrast to a decline of 1.2 per cent during the comparable period last year. The growth rate of around 4 per cent is still a far cry from the average annual rate of growth of 8 per cent achieved in the '80s. Several factors have contributed to the slackening of industrial growth. To some extent, attempts to reduce the fiscal deficit, which once again has a bearing on government expenditures, must have affected the demand for certain goods The demand for industrial consumption goods must have been affected by the rising trend in prices. However, there are some encouraging factors in the overall economic scenario with respect to industrial production. With the improvement in production of cash crops, agro-based industries which still have a weight of 30 per cent in the index of industrial production may not face any supply constraints. With larger imports, the availability of foreign components and raw materials must also ease With the improvement in agricultural production, rural incomes will pick up which can again create more demand for industrial consumption goods

There is as yet no indication of private investment going down. A study done by Reserve Bank of India on the forecast of corporate investment indicates that in 1992-93 corporate investment might be higher than in the previous year by 15.9 per cent. In fact, the primary capital market has been characterised by significant buoyancy, both in terms of number and amount of new capital issues by non-Government public limited companies. During the first eight months of the current financial year, the number of new issues more than doubled—increasing from 259 to 596 and the average amount per issue also increased substantially, as a result of which, the total amount of issues increased more than five-fold—from Rs. 2,020 crore to Rs. 13,723 crore; nearly two-thirds of the total new issues were on rights basis. Public investment, however, could have suffered to some extent as a consequence of the overall attempts to contain fiscal deficit. The Annual Plan outlays of State governments may show a shortfall of 10 per cent as compared with the original estimates because of the inability of States to raise adequate resources.

There are signs of revival in the external sector although there is a need for continuous monitoring of trends in order to take pre-emptive action to prevent any pressure on the reserves. During April-November 1992 the value of exports in US dollar terms recorded a growth of 5.9 per cent over the corresponding months of the previous year. What is encouraging is that exports to the General Currency Area, which are important from the point of view of accretion to reserves, grew by 13 4 per cent On the other hand, imports too recorded a substantial increase of 18 7 per cent during the period as compared with the corresponding months of 1991 This was the result of release of the pent-up demand consequent to the relaxation of the import controls by both the Government and the Reserve Bank of India As a consequence, trade deficit rose to $3,097 million from 1,431 million in the corresponding months of 1991 However, it was still lower than the deficit of $4,079 million observed in April-November 1990 The analysis of trade balance shows that while there was a deficit of $3,468 million in April-November 1992 on account of oil, the non-oil balance showed a surplus of $371 million. Our success on the external front will to a large extent be determined by our ability to manage the oil sector.

As of January 15, 1993, foreign exchange reserves amounted to $5.3 billion. Although this indicates a fall of $300 million compared with the position at the beginning of the year, that we have been able to maintain more or less the level of foreign exchange reserves does indicate that on a current basis our inflows and outflows are matched. Our inflows do of course include exceptional financing.

There has been a distinct change in the climate for foreign investment. The approvals by the Reserve Bank of India and the Government do show a sharp rise. During the period from August 1991 through October 1992 foreign collaboration approvals were granted to 1,876 proposals (of which 740 were for equity participation), amounting to US$1,224 million. Of these, 808 proposals were approved by the Reserve Bank and the remaining by the Secretariat for Industrial Approvals and the Foreign Investment Promotion Board The approvals given by RBI include 38 proposals from existing companies for enhancing foreign equity up to 51 per cent Most of the proposals approved both by the Government and the RBI have yet to result in the actual flow at investment This does indicate that much more work needs to be done to translate the approvals into actuals

Monetary & Credit Policy

Containment of inflationary pressures and supporting productive activities with adequate credit have remained the cornerstone of Reserve Bank's monetary and credit policies. The Reserve Bank came to bear more than its normal share of responsibility in mid-1990-91 when the balance of payments situation acquired crisis dimension It had to respond swiftly through monetary and credit policy measures aimed at import compression and demand containment While these strong measures helped to alleviate the balance of payments problem they inevitably had an adverse impact on the general level of economic activity which in the circumstances could not be avoided.

In formulating the monetary and credit policies in 1992-93, while keeping in mind the primacy of the objective of inflation control, measures have been introduced to revive industrial and agricultural production.

There has been a distinct improvement in the price situation during the current financial year so far. The inflation rate as measured by the Wholesale Price Index on a point-to-point basis in the current financial year up to January 2, 1993 was 5.7 per cent as compared with 12.0 per cent recorded during the corresponding period of the previous year. Even after allowing for the difference between the provisional and final price index, which is about one to one and a half percentage points, there has been a distinct moderation in the price increase in the current year For the year as whole, the Wholesale Price Index may record an increase between 8 and 9 per cent.

The pace of monetary expansion during the year up to December 11, 1992 has been 11 2 per cent as compared with a 14 2 per cent increase in the corresponding period of last year. Though there has been a moderation in the money supply growth, it has already exceeded the target set for the full financial year. There is a continuing need to keep a watch on money supply growth. The slower rate of growth in broad money during 1992-92 as compared with 1991-92 has been made possible mainly on account of two factors. First, the foreign exchange assets adjusted for net drawals from the IMF declined in '92-93 as compared with a large increase in '91-92 Second, there was a lower expansion of net RBI credit to the Central Government; during last year (up to December 25, 1992) the fortnightly average level of net RBI credit to Central Government was Rs. 6,592 crore as compared with the average level of Rs. 9,425 crore during the corresponding period of last year. For the first time, the net RBI credit to Central Government is running at a level lower than the budgetary deficit. The reduction in the net RBI credit to the Centre this year has been in tandem with the Government's declared objective of reducing the gross fiscal deficit from 6.5 per cent of GDP during 1991-92 to 5 per cent of GDP in 1992-93.

If the reduction in fiscal deficit and more particularly the budget deficit is enduring, it provides greater manoeuvrability to monetary and credit policy, by enabling a reduction in pre-emptions under the cash reserve ratio and the statutory liquidity ratio In relation to both these ratios, there have been substantial changes during 1992-93 Because of the modifications introduced in these two ratios, the pre-emption of incremental deposits which stood at 63 5 per cent in 1991-92 came down to 45 per cent in the first half of 1992-93 and further to 25 per cent in the second half of the year This implies that in the second half of the year, almost 75 per cent of incremental deposits are available for expanding credit In fact, there has been a sharp increase in non-food credit made available during 1992-93. During the previous financial year (up to December 25, 1992) credit extended by scheduled commercial banks rose by 16,405 crore or 13.6 per cent as compared with the rise of Rs 3,450 crore or 3 1 per cent during the comparable period of last year. To some extent the increase in net bank credit in the current year is also due to the adjustments which became necessary because of the changes introduced with respect to the bill discounting and rediscounting operations as well as higher receivable finance to be provided to some industries, such as fertilisers. Nevertheless, there has been a significant increase in the provision of bank credit which has been facilitated by significant reductions in reserve requirements.

In fact, recognising the need to provide additional stimulus to industry and agriculture certain measures were introduced on January 18, 1993. The Reserve Bank has enhanced the general line of credit for short-term agricultural operations to National Bank for Agriculture and Rural Development (NABARD), by Rs. 400 crore from Rs. 2,700 crore to Rs. 3,100 crore. This will enable NABARD to provide larger credit to finance short-term agricultural operations during the Rabi season.

To stimulate output of capital and intermediate goods industries, the RBI will provide accommodation to Industrial Development Bank of India (IDBI) to the tune of Rs. 400 crore by way of refinance limits Another Rs 200 crore will be made available out of IDBI's own resources. This additional financial assistance through bill discounting and other schemes will be available to manufacturers of commercial vehicles, machinery manufacturers, hire purchase and leasing companies and Road Transport Corporations.

Simultaneously, the RBI has also relaxed the norms for calculating maximum permissible bank finance Banks have been advised to treat only two-thirds of the term loan instalments falling due for repayment during the next 12 months as current liabilities and to keep the remaining one-third outside the current liabilities for the purpose of calculating maximum permissible bank finance. This move will enhance the borrowers' eligibility for maximum permissible bank finance which would alleviate to some extent the liquidity problems faced by some borrowers because of changes relating to bill discounting/ rediscounting.

Besides we have also announced relaxation of selective credit control measures by reducing the minimum margins on bank advances against oilseeds and vegetable oils (including vanaspati) and also against cotton

and *kapas* across-the-board by 15 percentage points in view of the improved price-output situation. Thus, on the whole, despite compelling needs to moderate monetary growth to contain inflationary pressures, attempts have been made to ensure that the availability of credit to the productive sectors of the economy is adequate.

Finally, I come to the issue of interest rates. I can understand your concern about the high level of interest rates. A central feature of the Indian monetary and credit system is that the interest rates are administered. In the case of commercial banks, both the deposit rates and lending rates are regulated. Until recently the rate at which corporate entities can borrow in the form of debentures was also regulated The rate of interest on the government securities can be maintained at lower levels because commercial banks and certain other institutions are required to invest a certain proportion of their liabilities in government securities The purpose behind an administered structure of interest rates is to enable certain preferred or priority sectors to obtain funds at concessional rates of interest. An element of cross-subsidisation gets automatically built into the system if the concessional rates provided to some sectors are to be compensated by higher rates charged on other non-concessional borrowers. Regulation of lending rates leads to the regulation of the deposit rates. If the average lending rate is to be maintained at a certain level, the deposit rate has to be accordingly adjusted. Over the years, the system of administered interest rate structure became complex as the number of sectors and segments to which concessional credit is to be provided proliferated.

The last few years have seen some important reforms in relation to administered structure of interest rates. These are: (a) considerable rationalisation has been effected in banks' lending rates with reduction in the number of concessional slabs and enhancement in some of the rates, thereby reducing the element of cross-subsidisation; (b) the regulated deposit rate structure has been replaced by a single prescription setting a maximum rate for maturities of 46 days and above; (c) rates of interest on government securities have been raised; and (d) for several instruments, such as Certificates of Deposits the interest rates are freely determined by individual banks. On the deposit side, there is need to give depositors positive real rate of interest, otherwise funds may move out of the organised financial system into the unorganised system There is considerable controversy whether rate of interest is an important variable in determining the overall savings Notwithstanding this dispute, there is no doubt that transferable savings are influenced by interest rates. It is relevant to note that the rate of return earned by banks on their entire portfolio of lending including those to government is no higher than 13 per cent. It is the element of cross-subsidisation, which becomes essential to some extent, that keeps the rates of interest for the large borrowers at a relatively higher level. Moreover, these high interest rates were a part of crucial policy measures undertaken to achieve a turnaround of the balance of payment position. However, from the high level of 20 per cent which was prescribed as the minimum lending rate in October 1991, it has been brought down in two stages to 18 per cent. In fact, on the last occasion when the lending rate was lowered, the maximum deposit rate was also lowered. Any downward adjustment in the lending rate is possible only if the deposit rate is also lowered Otherwise the viability of the banking system will be severely affected. In determining the deposit rate, one has to take into account the perceptions of depositors as well as the returns available on alternative financial assets All that I can say, at this juncture, is that we will keep interest rates under continuous review. It is not the intention of policy to keep the real lending rate at a very high level over a long period. □

(Courtesy: RBI)

Corporate Planning In Banks

Dr. Ashok Vasant Bhuleshkar

IN a dynamic economic environment today, the banking industry is faced with the challenges to cope with the two main objectives in the context of corporate planning. The first and the foremost is the attainment of social objectives via their targeted lendings. This responsibility presupposes on the part of banks that they conduct their business in accordance with the national goals and priorities, yet they have to function as a corporate body, commercial in nature, as an individual bank For this purpose the banks are expected to develop social consciousness and plan their business conduct in such a manner that it eventually will lead to surplus generation. The second objective is the optimisation of their profits through profit planning strategy in their business conduct by enhancing their operational efficiency and by bringing about cost effectiveness all around. The time-bound Action Plan proposed for banks by the Reserve Bank of India in recent years has given the necessary direction and guidance. It may be mentioned that the Action Plan emphasises that the banks should critically analyse their income and expenditure with a view to finding ways and means of improving profitability The traditional role of the banks as a commercial entity solely concerned with the business conduct devoted to operate on commercial lines, so as to generate the profits through increasing operational efficiency has been given due weightage in the Action Plan contemplated by the Reserve Bank of India set out for the period 1990-92. Accordingly the banks are required to project their profits for each of the next two years in order to make available surpluses for augmenting and strengthening the financial base It is felt that this action will ensure better management of funds and help effecting quicker recoveries of banks' dues Before we analyse the present state of planning methods obtaining in Indian banks, let us have a quick look at the theoretical foundations of the planning system.

Why Planning

In the context of RBI's action plan fulfilment, each bank is required on its part to develop effective short and long-term planning systems and is also required to establish and develop corporate strategic planning capabilities The basic concept of planning in banks should thus be concerned with the channelising resources to the desired objectives. At times the objectives may be clear but the availability of resources may be constrained by the stipulations of maintenance of CRR (Cash Reserve Ratio) and SLR (Statutory Reserve Ratio) requirements, while at other times, it may be the reverse Therefore, the absence of planning, achievements of objectives may not be realised due to mis-match between resources and objectives. Hence, for effective planning, the primary need is for clarity and specificity of objectives In short, to be effective a management by objectives system must at least avoid unnecessary delays, improve communications, coordinate activities, ensure individual and group commitment, discard too much paper work and pin down the responsibility through delegation of power and authority at appropriate levels, spell out the quantitative parameters, and finally, inculcate in the planning process and techniques qualitative measures so that the corporate planning concept can be translated into action to attain its success in a realistic manner. The degree of planning involved depends, however, upon number of complex factors The complexity of planning in the banks will vary directly with the size of the organisation, the range and the complexity of its activities. But, the essence of planning process does not alone lie in the formal process but is concerned with providing better basis for decisions taken by management throughout the organisation on a continuing basis

Main Tasks

Planning envisages four main tasks which should not be seen in isolation but viewed as a whole These four tasks can be

(i) Establishing strategic objectives in various sectors of its activities over the plan period;

(ii) Establishing operational plans—clarifying means of achieving strategic objectives in terms of operational and technical objectives and relating priorities, action plans and resources required,

(iii) Defining the plan and clarifying through individual/group analysis, issues requiring further analysis; and
(iv) Periodic review of the plan and updating of reviewing techniques in the light of such review.

Some of the key areas to be considered over the plan period are:

(i) Financial and other resources;
(ii) Human resource—types of skills likely to be required/types of skills likely to be redundant;
(iii) Effective utilization of human resource/upgrading of existing skills.
(iv) Improvement in Customer Services,
Customer Services—Depositors/borrowers—scope and means of improvement,
(v) Improvement in overall profitability—effective deployment of all resources—areas of cost control, areas of increased expense leading to proportionately much larger benefits
(vi) Innovations—new services/cutting out or modifying existing services
(vii) Important ratios—credit/deposit ratio, district-wise and bank-branch-wise return from exhcnage transactions—yield on securities, etc

Corporate planning is not merely forecasting Corporate planning should be concerned with existing information to take decision on what needs to be done in future What can be realistically achieved in a given time scale and motivating staff for improving performance. Corporate planning requires to concentrate on key areas and need not be too much comprehensive

Critical Areas

Broadly speaking, the optimisation of profits require planning in many different ways. As a corporate body, planning on the part of banks involves review of many critical areas such as management of their funds judiciously, credit deployment/management with a mix of allocational efficiency; developing manpower management techniques in a cost effective manner, evolving techniques and processes of planning prudently and thus ultimately, evolving strategies for profit planning in a realistic manner that their weakness in the ultimate analysis become strength for growth and expansion which would enable them to subserve the social objectives and goals pronounced in the national economic development plans One important factor which the banks should keep in mind while adopting the planning and techniques at the Head Office level, at the Zonal/Regional/Divisional level and even at the bank branch level, is that they are operating in an environment of rapid technological changes and therefore, they have to suitably modify process and techniques to achieve the goals.

Like any large organisation the banks in India have been involved in performance budgeting and planning over a number of years With growing complexity and ever increasing number of transactions, it is all the more necessary for banks to have efficient planning to cope with the challenges, existing and emerging Now the pertinent issue in this context is how far has planning succeeded in banks? Profitability is one of the most important criterion for judging the performance of any commercial organisation including banks Looking at the profitability of banks, the performance over the last few years is not impressive Even with the existing variations in accounting procedures adopted by banks, declared profits are extremely meagre The planning process should in fact ascertain the adequacy and cost effectiveness of various control and monitoring systems to ensure efficient development of all resources The planning process should also evaluate the effectiveness of internal systems to cope with the increased complexity and over increasing volume of transactions as lack of effective control over inter branch transactions, clearing house account, suspense accounts not only lead to distortions in Balance Sheet and profit and Loss Account but also result in colossal loss through frauds.

Human resource is most important factor for any bank and also one of the most expensive. How far does the planning process evolved any plan to motivate the staff and upgrade its skills in line with the rapid technological changes? How far does the planning process help in maintaining and improving the quality of advances which are of critical importance to the banks?

In sum, corporate planning as a concept is relatively new to commercial banks in India The expertise will have to be developed to formulate operational plans In the beginning efforts should be made to prepare operational plans at the highest level Thereafter, the next step would be to do the similar exercises at the regional/divisional levels. It is necessary to develop the process of involvement and consultation The operational plans at the branch level can only be undertaken when the process of corporate planning gets the momentum and forms the part of the culture and thinking process at every stage of planning This would ultimately help to reconcile the various operational plans and would enable to integrate them to evolve an integrated corporate plan for the bank as a whole ☐

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INSAT In India's Development

Biman Basu

THE second Indian-built multipurpose geostationary satellite, INSAT-2B is being put in orbit shortly. It will be launched by the European Space Agency from Kourou in French Guyana. When operational, in a few weeks, it will not only increase the countrywide telecom capacity but will also substantially augment regional television services in the country besides providing additional channels of data transfer In a way, INSAT-2B will ensure the continuation of the revolution started by INSAT-1B ten years ago. Over the year, the INSATs have not only helped link the remotest corners of the country with reliable telecom lines, bringing them into the national mainstream, but it has also enlarged :he reach of Doordarshan and All India Radio substantially Besides, hey have also brought a sea change n the quality and extent of meteoro-ogical services in the country, by providing round-the-clock cloud :over imagery and hydrological and oceanographic data for meteorologi-:al forecasting

As far as satellites go, the INSAT s a unique concept. A brainchild of ndian space scientists, who wanted o make the most of the available esources and technology, each satel-ite was conceived as a three-in-one package capable of providing simul-aneously reliable long distance tele-om services, round-the-clock earth bservation and data relay facility, nd countrywide networking of All dia Radio and Doordarshan centres. esides being a major technical inovation in satellite design, the perationalization of the INSATs so represents a major organiza-onal innovation which cuts across e traditional boundaries of the overnment departments and agen-es. Besides the Department of pace, which is the main partner in the joint venture and is responsible for the procurement, launch and operation of the satellites, various other user agencies such as the Department of Telecommunications, India Meteorological Department, All India Radio and Doordarshan are actively associated with the project. However in oder to get the INSAT system in operation before the 1982 Asiad in New Delhi, and to gain time for the indigenous fabrication of satellites for the system, contract for the fabrication of all the satellites of the first generation, namely INSAT-1B, INSAT-1C and INSAT-1D, were awarded to the US firm Ford Aerospace. Only two of them-INSAT-1B and INSAT-1D functioned well, the other two had to be abandoned in space due to a series of technical glitches soon after launch The first of the indigenously-built satellites of second generation INSATs, INSAT-2A, was launched in July last year and has been performing flawlessly ever since. This has given new confidence to Indian space scientists in satellite building. This is important, as all the future INSATs including the INSAT-2B, are to be indigenously built.

The INSAT system today comprises two satellities, INSAT-1D and INSAT-2A in orbit and about 700 ground terminals of various sizes, with the Master Control Facility at Hassan in Karnataka. Of the ground terminals, about 150 are used for telecom services. Together they provide over 4500 two-day speech circuits over 140 routes, connecting for the first time even the far off rural areas and off-shore islands with the main land through reliable STD lines. The nationwide geographic reach of the INSATs makes it possible to use the system for a variety of applications ranging from administrative and business transactions to library networking and computer communications. Already these facilities are being made use by several government and private agencies using small terminals. To facilitate faster transmission of telegraphic messages to remote rural areas which at present takes several days, more than 50 additional earth stations are being set up in the northeast with the hub station at Shillong. The INSAT is also helping in linking up all the district headquarters in the country through the National Informatics Centre Network (NICNET). Another network, called the Remote Area Business and Message Network, is coming up which will provide reliable data communication facility between widely dispersed locations in remote areas.

As a weather satellite, the INSAT performs several tasks. Each satellite is equipped with a device called Very High Resolution Radiometer (VHRR) which records the cloud cover image both in the visible and infra-red wavelength, every half an hour round-the-clock. Cloud pictures taken by INSAT are regularly used on Doordarshan's night news bulletins and are also published in newspapers.

In addition to providing cloud cover imagery the INSATs are also equipped to receive meteorological data from one hundred unmanned Data Collection Platforms (DCPs), including one set up at the Indian base in Antarctica. The DCPs provide valuable inputs for more accurate weather forecasts.

Life Saver

The INSATs are also helping save lives. A unique service rendered by these satellites is that of providing advance warning about cyclones through a locale-specific Disaster Warning System. The system is made

up of over 100 specialy designed disaster warning receivers (DWRs) installed in selected cyclone-prone area of the east coast. Whenever a cyclone is seen moving towards the coast, the receiver in the specific area is automatically activated by the Cyclone Warning Centre located at Madras via INSAT, which alerts the people in the threatened area well in time to move away to safer places. One of the most dramatic demonstrations of the life-saving capability of this unique system was seen during the cyclone that hit the Andhra Pradesh coast on 9 May, 1990. Timely warning enabled the local authorities to evacute more than 1,70,000 people from the threatened area, thus saving thousands of human lives and livestock With INSAT-2B in orbit the Meteorological Department is planning deployment of additional DWR units in other cyclone-prone coastal areas of the country

The most dramatic impact of INSAT has been in the spread of Doordarshan coverage in the country Today there are 537TV transmitters which carry Doordarshan programmes to the remotest parts of the country Even if there is no local transmitter around, one can still receive Doordarshan programmes on a direct reception set.

After the coming of the INSAT, the quality of radio broadcasts, especially of those programmes which are put out on the national network, has improved dramatically. Gone are the days of noisy interference that invariably accompanied relay of programmes. Networking through the RN channels of INSAT now brings the programmes loud and clear.

An additional feature of INSAT-2A and INSAT-2B is the provision of a special transponder for satellite aided search and rescue operation. Besides the United States, India is the only country in the world to incorporate this facility in a geostationary satellite, which will be invaluable in search and rescue in the sea.

Although the first indigenously built INSAT was put into orbit only in 1992, India's experience in using satellite for telecommunication and TV broadcasting goes back to mid-1975 when the Satellite Instructional Television Experiment, or SITE, was launched. Under this project, educational TV programmes were broadcast directly to augmented community TV sets in more than 2000 villages from the "ATS-6" satellite leased from the United States SITE was a one-year experiment which laid the foundation of satellite broadcasting in India. It was followed by a two-year Satellite Telecommunication Experimental Project, or STEP, in 1977 The Franco-German satellite "Symphonie" was used in STEP

By the time the first of the INSATs was put into orbit in April 1982, the infrastructure of ground stations was ready But the first satellite INSAT-1A failed within a few months after launch INSAT-1B did better Launched in August 1983 it continued to be in service well beyond its rated working life till INSAT-1D was commissioned in June 1990 The third satellite, INSAT-1C also failed to make the grade and was abandoned within weeks of the placement in orbit in August 1988

The second generation of INSATs were designed to be bigger and with higher functional capability than their first generation predecessors Both INSAT-2A and INSAT-2B carry 18 transponders each compared to only 12 of the INSAT-1 series Besides both have on board indigenously designed and built subsystems such as communication and VHRR payloads, reaction control thrusters, telemetry, tracking, command, and power systems, and the solar array As the experience with INSAT-2A shows, these have all performed extremely well

Even as INSAT-2B awaits lift-off on the launch pad at Kourou, work on the fabrication of three more if its siblings is already under way. Ultimately, the INSAT-2 space segment will comprise four satellites, with two of them located very close to each other at 74°E longitude and operating as a single large capacity satellite.

The experience with SITE and the INSATs, have clearly demonstrated not only the tremendous uniting power of the satellite but also its potential role in the eradication of illiteracy in the rural areas. Keeping this in mind, and as an offshoot of the INSAT programme, the Indian Space Research Organization has drawn up a plan for a satellite exclusively for rural broadcasts Called GRAMSAT, it will be tailored to meet the basic requirements of rural areas to disseminate culture and region specific knowledge on health, hygiene, environment, family planning, and agricultural practices. The GRAMSAT could also incorporate features for providing continuing education for specific groups.

Looking at the tremendous progress in the spread of countrywide telecom network which in turn has led to a visible spurt in economic activity the kind of which was unthinkable before the coming of the INSAT, one is reminded of what Dr. Vikram Sarabhai, the father of Indian space research had said many years ago " we are convinced that if we are to play a meaningful role nationally, and in the comity of nations, we must be second to none in the application of advanced technologies to the real problems of man and society which we find in our country " The INSATs have shown what modern technology can do for the all round development of even a developing country like India. □

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Prospects Of Factoring Services

V.H. Koppar

ONE of the main headaches of small and medium industrialists and traders is the timely collection of debts As the debts are not collected in time they are handicapped by lack of sufficient working capital This affects their production and expansion of business If the debts are collected in time, they can pay their suppliers in time and earn cash discounts The working Group on Money Market, that is, Vaghul Committee, recommended introduction of factoring services in India to solve the financial problems of the small scale suppliers Reserve Bank of India then appointed a committee under the Chairmanship of C.S. Kalyanasundaram, former Managing Director of the State Bank of India, to examine the need and scope for factoring organisation in India. The committee submitted its report in December 1988 recommending introduction of factoring services in India The R.B I. accepted the recommendations of the committee The Government of India has now declared factoring as an activity which could be undertaken by Banking companies under the Banking Regulations Act 1949 The R.B.I then directed the banks to take up factoring activity through a subsidiary The State Bank of India was the first bank to come forward and in collaboration with the Small Industries Development Bank of India, Union Bank of India, State Bank of Saurashtra and State Bank of Indore, set up a new subsidiary called SBI Factors and Commercial Services Private Ltd (SBI Factors) to serve industrial and commercial units in western India covering Maharashtra, Madhya Pradesh, Gujarat, Goa, Dadra Nagar Haveli, Diu and Daman. The company commenced its operations on 18 April 1991 but was formally inaugurated by Shri S Venkitaramanan, Governer of Reserve Bank of India on 30 July 1991

Factoring is a continuing arrangement between a financial institution (the factor) and a business concern (the client) selling goods or services to trade customers, whereby the factor purchases the clients accounts—receivables/book debts, controls, the credit extended to the customers and administers the sales ledger.

The main function of the factor is to purchase account receivables or book debts. However, he also renders other ancilliary services like administering the seller's sales ledger, provision of prepayment of funds against the debts he agrees to buy, collection of the debts and also covering the credit risk Factors also provide certain advisory services by virtue of their experience in credit and financial dealings and excess to extensive credit information

All the above services provided by a factor can be obtained individually from other sources For example, commercial Banks provide finance against receivables by discounting bills or granting cash credit or overdraft. Collection of book debts is performed by specialised collection agencies in advanced countries who also underwrite credit risk Computer agencies can provide Sales Ledger accounting facilities. But what is unique about factoring is that a factor brings all these services together in one package The actual purchase of trade debts as opposed to granting finance against them is unique to factoring Thus factoring offers a solution to the problems posed by working capital tied up in trade debts

The seller will prepare his invoice in a usual manner on sale of goods only adding the notification that the debt on the invoice is assigned to a factor and it should be paid to the factor. Then a copy of the invoice

along with a receipted delivery challan is forwarded to the factor. The factor will then immediately provide up to 80% of the invoice value. The factor then undertakes the responsibility of collection of debts. The customer will receive official notification and statements of accounts. When the customer settles his account the factor will pay the balance of 20%. The factor will send monthly statements of accounts and inform the client about the progress of collection of debts from time to time.

Thus a trader or a manufacturer can convert his invoices into instant cash upto 80% of their value without waiting for the usual 30 or more credit days The factor takes up the follow up action to collect the debts So, the manufacturer is relieved of this onerous task. The factor also maintains the sales ledger of the client. An on line computerised system informs him about the debts collected and overdue accounts. This helps the client to increase his sales with the availability of finance.

Cost

The cost of factoring is not very heavy The client will be charged only for the amount actually used and thus it is a cheap source of finance. The total cost may be slightly higher than the bank's rate of interest But when we take into account the other services rendered by the factor the ultimate cost is not much. It is quite reasonable.

The factors can also advise their clients on economic conditions/ trends and expected future developments in their respective industries. In advanced countries factors also advise their clients on replacement of machinery and offer other technical advice. Some of them even advise on selection of sales agents and recruitment of suitable technical personnel. In short, if there is a close and continuing relationship between a factor and a client, the factor can act as a friend, guide and philosopher to the client

Prerequisite

The prerequisite for factoring operation is the establishment of factoring relationship between the client and the factor. On the basis of credit evaluation, the factor fixes credit limits for individual customers of the client indicating the extent to which and the period for which the factor is prepared to accept the client's receivables of such customers

Even in international trade factoring services will be very useful. Here there will be two factors—an import factor and an export factor. However, we do not still have in India international factoring We have domestic factoring only

The advantages of factoring to the client can be summed up as follows—

1 Benefits of the financial facility from the factor He can pay his suppliers promptly. This enchances his credit reputation. He can get cash discounts from the supplier which will improve his profit margin. He can easily cope with the seasonal demand for cash He can improve return on his capital without giving up equity or control.

2 Benefits of sales accounting service· There will be a lot of saving in the cost of maintaining his own sales administration Management time previously spent on supervising the accounts can be saved There is no need for the management to spend its valuable time on following slow paying customers As the accounts are collected in time, there will be saving in interest payment. Relations with the customers are not spoiled by repeatedly requesting for payment. Time thus saved can be used for increasing sales and overall development of business.

3. Benefit of the factor's credit management:

Client need not spend his time on investigating credit standing of his customers as up to the minute credit information about existing and new customers is available from the factor. Thus he can avoid easily poor quality and risky customers. Factoring business has just started in India. As per SBI Factors first annual report (1991-92) it has on its books 25 units who are manufacturers and sellers of goods and 164 customers. 60% of the units are small scale units. They deal in chemicals, packaging, plastics and allied products, consumer durables, castings pharmaceuticals and light engineering.

India is in the process of opening up and liberalising its economy. This includes reforms in the financial sector. There is a tremendous potential for growth for the financial services industry including Factors For further development of factoring in India it is necessaryto implement the following recommendations of the Kalyanasundaram committee:-

1. There should be stamp duty exemption on assignment of book debts

2 Legislation providing for registration by an appropriate authority assignment of book debts in favour of a factor

3 Norms should be prescribed for regulating new entrants to factoring business.

4. The Civil Procedure Code should be suitably amended facilitating recovery of factored debts through summary proceedings under order 37 of the Code.

In addition factoring companies should have refinance facility from I.D.B.I., S.I.D B.I. etc. Factoring companies should be allowed to raise funds through public deposits and the General Insurance Corporation should undertake insurance of factored debts at reasonable cost. ☐

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Export Potential Of Minerals: A Perspective

B.D. Jethra and P.N. Shali

MINERALS are essential inputs for economic development During the past 40 years of planned development, mineral production in India achieved a significant growth Presently, India is producing iron ore, bauxite, lead-zinc ore, copper and many other minerals India has one fifth of the world's bauxite reserves at around 2,900 million tonnes. While India possesses a large potential for export of minerals particularly that of iron ore, bauxite, granite, bentonite, barytes, etc , due to a variety of factors, there has been slow growth in mineral exports One of the main factors has been slow growth in the expansion of mining activity, infrastructural and logistics problems

The process of liberalising Indian economy commenced with many forward looking policy changes brought about in 1980s The objective is that the Indian economy should become competitive internationally. The Government has further intensified this process A series of policy measures have been taken recently for giving the economy an impetus to development through export-led growth. The major policy changes are a new industrial policy, full convertibility of the Rupee, a new trade policy apart from major reform of the fiscal policy, etc With these changes, it would be possible for the private sector including MNCs to commercially exploit the mineral wealth of the country With these refoms, a higher growth in exports in general and of minerals in particular is expected in the 1990s. The export growth targets for the Eighth Plan (1992-97) is 13.6% and policies have been brought about to aim for this target.

While minerals contributed about 21% of foreign exchange earnings in 1987-88 vis-a-vis other commodities that were exported, it is expected that mineral exports will grow in 1990s because of the policy reforms. But given the long gestation involved in creating new mining capacities and financial bottleneck in increasing investments particularly in the public sector, these policy reforms are likely to have their major impact on the mineral sector in the long-term

Present Status

The value of mineral production continued to record an increasing trend in the Seventh Plan period and the distribution of value of mineral production shows that mineral fuels (coal and oil) accounted for around 87%, metal mining 5%, non-metal mining 3% and minor minerals 5%. The entire value of metallic mineral production in 1989 was shared by iron ore, copper ore, chromite, zinc concentrates, gold, manganese ore, lead concentrates and silver—in that order. Among the non-metallic minerals, about 89% of the value was shared by limestone, phosphorite, magnesite, dolomite, fire clay, kaolin, gypsum and barytes. Limestone and other calcareous minerals alone contributed 64% of the total share of non-metallic minerals.

The National Income (at current prices) from mining and quarrying sector recorded an average increase of 15-17 per cent per annum during 1987-89. Presently, mining operations are confined to about 51 minerals—2 fuels (coal & lignite), 11 metallic minerals and 38 non-metallic (industrial) minerals—from about 4400 mines under production These, however, exclude oil and natural gas, atomic minerals and minor minerals.

The public sector continues to play a dominant role in mineral production in the country with around 90% contribution to the value of mineral production from 850 mines for 42 minerals The entire output of fuel minerals, copper, gold, silver, lead-zinc, illemenite, rutile and tungsten concentrates in metal mining sector and diamond, fluorspar, phosphorite, pyrite in non-metal mining sector is from the public sector

The private sector operates small mines either as proprietory or partnership ventures and the mineral production is generally marketed as such with little processing except sorting, screening, washing and grading of materials. Iron ore, bauxite, limestone, etc., some of the major minerals, are, however, also mined by the private sector. The share of the private sector in mineral production and exports is likely to increase with the new policies.

The contribution and position of India in the world production of principal minerals and metals is as follows.

It would be seen that India contributes significantly to the total world production of minerals such as mica, chromite, barytes, iron ore, bauxite, coal and lignite, etc.

The life of proved plus probable reserves at the 1994-95 consumption level for metallic minerals such as bauxite, iron ore, etc., is more than 150 years, but the balance life of other metallic minerals such as copper, lead-zinc, manganese, chromite, etc. is only around 20-35 years. Thus there is not much potential for additional export of metallic minerals except for iron ore and bauxite. The position can improve when resources in possible category are brought into proved or probable category and some new major discoveries are made by exploration.

The recoverable reserve position of non-metallic/industrial minerals as on 1.1.1985 indicates that there are significant reserves of barytes (71.3 million tonnes), bentonite (275.8 million tonnes), china clay, kaolin (871.6 million tonnes), fire clay (703 million tonnes), fuller's earth (236 million tonnes), kyanite (319 million tonnes), talc/steatite/soap stone (75.6 million tonnes), etc.

There are also significant reserves of limestone, dolomite, gypsum, quartz-silica sand, quartzite, etc. These include inferior grade reserves which will need beneficiation before they can be exported.

	Minerals & Ore	Value in Rs./crore 1988-89	1989-90	1990-91	1991-92
A	Granite, Stones & products thereof	127	152	235	250
B	*Processed Minerals* —Calcined alumina, Barytes) —Bentonite, Quartz/Fluorspar) —Calcined Magnesite, Kaolin) —Fuller's Earth, Steatite Block) —Dolomite, Illemenite) —Atomic Minerals, Iron Oxide, etc)	227	422	271	260
C	*Bulk Minerals & Ores* - Iron Ore, Chrome Ore) —Manganese Ore, Coal) —Bauxite, Salt & Aluminium Metal)	858	1129	1282	1502
	Total	*1212	1703	1788	2012

(*These figures do not include the export of diamonds, and precious/semi-precious stones as these are more in the nature of re-exports rather than exports from our own production)
(Source: CAPEXIL—A Statistical Profile 1991)

Commodity	Production contribution (%)	India's ranking in production (quantum)
Minerals		
Mineral fuels		
—Coal & Lignite	4 3	6
— Petroleum (crude)	1 0	20
Metallic minerals		
Bauxite	4 1	6
Chromite	7 0	3
—Iron Ore	5 2	6
—Manganese Ore	5 7	7
Industrial minerals		
—Barytes	9 1	4
—Kyanite, sillimanite & other related minerals	9 5	4
—Magnesite	4 4	8
—Rock Phosphate (including apatite)	0 5	16
—Talc/steatite/pyrophyllite	6 3	5
—Mica	2 8	1
Metals/Alloys		
—Aluminium	1 9	10
—Copper (electrolytic)	0 4	31
—Steel (crude)	1 3	15
—Lead (primary & secondary)	0 5	30
—Zinc	1 0	25
—Ferro-chrome	1 4	15
—Ferro-manganese	2 9	11
—Ferro-silicon	1 5	15

Source: Indian Mineral Year Book, 1991.

Trade In Minerals

India's foreign trade includes exports of minerals both in the raw form and as semi-processed and processed forms in the nature of mineral-based primary manufactured products. Minerals in both raw and processed forms contributed significantly to India's export trade during 1987-88 with a share of 21.2% in the total value of merchandise of Rs. 15, 611 crore. The contribution of minerals in raw/unprocessed forms was, however, 5% while semi-processed/processed forms contributed 17%.

During the last decade, while there was a decline in the export earnings from raw minerals, the value realisation from the export earnings of semi-processed/processed forms showed a gradual increase every year after 1984-85. On the

(Contd. on page 17)

Bright Prospects For Exporting Farm Goods

B.K. Mukhopadhyay

COMPOSITION of India's exports clearly show that the share of agriculture and allied products have been on the wane. The share stood at a much higher level at 44 2 per cent in 1960-61 But in 1970-71 it came down to 31 8 per cent, 30 7 per cent in 1980-81 and finally to 19.4 per cent in 1990-91.

According to the latest provisional data available, agricultural exports—which now form16 5 per cent of exports—are expected to contribute more in future, are in fact on ebb in dollar terms The Economic Survey, 1992-93 says, such exports faced a sharp decline in dollar terms by as much as 11 per cent during the first six months of 1992-93, compared to the corresponding period a year ago.

During the first six months of 1992-93 the exports under review were at Rs. 4,020 crore, as compared to Rs. 3,650 crore for the corresponding period during 1991-92.

The decline in international demand, poor infrastructural facilities in the economy coupled with low quality of exports stood in the way of smooth growth. Sharp drop has been experienced in commodities like spices and non-basmati rice. For example, during 1991-92 chilli (one of the prominent spices) forged ahead as Bangladesh, the major chilli exporter, backed out of the international markets due to a bad crop and Indian exporters made full use of the situation India exported around Rs. 100 crore worth chilli to South East Asian markets during 1991-92. For pepper and tobacco exports have failed to grow steadily due to a number of reasons like—poor infrastructural facilities, exporters failing to maintain time schedules in respect of the orders procured For non-basmati rice, the exports came down from 5 7 lakh tonnes to 2.5—3 lakh tonnes. The Government decided to hold back the export of the item by fixing a high minimum exports price, considering the likely domestic demand—supply disequilibrium.

Table

Exports of major farm goods

Items	1990-91	1991-92	1992-93 (Apr Sept)
Cashew Karnels	4 5 (251)	6 8 (276)	3 5 (123)
Marine Products	9 6 (535)	14 4 (584)	7 1 (249)
Oil Meals	6 1 (340)	9 2 (373)	5 4 (189)
Raw Cotton	8 5 (474)	3 9 (122)	6 3 (11)
Rice	4 6 (256)	7 6 (308)	4 8 (168)
Spices	2 3 (128)	3 7 (150)	1 8 (63)
Tobacco	2 6 (145)	3 8 (154)	2 6 (91)

Amount in Rs 100 crore
[Amount in US$ Million (within brackets)]

It is a welcome decision that the target for agricultural exports has been stepped up by at least 12.5 per cent in dollar terms Though the $ 2,000 million exports target for 1992-93 has been stated to have been achieved, yet the need for determined and coordinated efforts to step up exports to a much higher level can hardly be over-emphasized. No doubt, as per the present facts and circumstances—the exchange rate adjustments, introduction of a unified exchange rate, expansion of the definition of 'manufacture' in the Exim Policy for 1992-97 will include agriculture and allied actvities—the efforts have been there and a conducive environment is being created

Tough competition prevails in the world markets. We have been experiencing tremendous threats from Guatemala in the cardamom market, where we almost held a monopoly even a few decades back. Indian spices dominated the scene for decades together But gone are those days. Now for every item severe competition has come up since each

producer wants to have a better share in the market With good harvests in Indonesia, Malaysia and Brazil and with the prevailing conditions in the East European region, we are not sure what the performance would be during 1993-94 so far as this item is concerned. The same is true for items like onion, etc. The pruning of the negative list of exports and extending substantial concessions to boost agriculture and allied sector exports are welcome Now the urgent need is for evolving a long term and consistent policy for agro-exports, both in terms of minimum export price and quantitative allocations and incentives for investments in infrastructure in the rural sector

The very poor share of ours in world agricultural exports (about 1 per cent) needs to be improved, atleast to the 1960 level of 2 per cent. Major problems like near stagnant output, low productivity and lack of competitive outlook require to be handled on a solid footing

This is true both for the traditional and non-traditional type of farm goods like plantations, cereals and preparations, fruits and vegetables, horticulture products, marine products, and other commerical crops. The FAO estimates that by 2000 AD, the world agricultural exports will amount to $ 452 billion. As per projections of the Economic and Scientific Research Foundations, if new directions are given to our farm export startegy so as to touch the estimated level of $ 36 billion, India's share in the world agricultural exports could rise to nearly 9 per cent The responsibility therefore, lies before the Government and the private sector in the matter of promotion of agricultural investment and creation of exportable surplus.

There definitely exists within our reach a vast European market which has been traditionally captured by exporters from the EC countries. To be specific, during 1992, the EC imported 45 billion ECUs (or £ 56 billion) worth of agricultural (inclusive of marine products) from outside EC. We had just a 1.5 per cent market share there (for items like tea, cashewnuts tobacco caster oil, rice, molasses and spices, in which we took part). Still, we happen to be the fourth largest exporter of shrimp to EC (after Ecuador, Greenland and Thailand). Indian marine exports were worth at £ 180 million last year, next only to Thailand. In 1991 more than a third of Indian exports to EC went to Britain alone. Out of Britain's last year's imports of fruits and vegetables to the tune of £ 3 billion, our share was around £ 20 million. For other items also we stand a good chance—banana apples, grapes, oranges and lentils, provided appropriate exploration of such markets is done □

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(Contd. from page 15)

other hand, the share of manufactured mineral-based commodities did not show any significant improvement However, minerals as a group continue to face adverse balance of trade For example, in 1987-88 the total value of mineral exports at Rs 3,312 crore was lower than the total value of imports of minerals at Rs. 5,724 crore

The position of foreign exchange earning from mineral exports is given in the table:—

It may be observed from the table that important minerals for export in value term have been iron ore, chrome ore, calcined alumina, aluminium metal, barytes and other industrial/non-metallic minerals as well as granite/stones

Minerals constitute an important segment in the total world trade It was around 35-40 per cent during the last decade The share of minerals in the total commodity exports of India (excluding precious/semi-precious stones) has been on an average 5 to 10 per cent).

In absolute terms, the share of minerals and ore sector in the total exports increased from Rs 160 9 crore in 1970-71 to Rs 170 36 crore in 1989-90 (estimate) Out of the total exports in 1989-90, regional share was 60% to East Asia, 21% to East Europe, 7% to West Europe, 6% to West Asia and 2% each to Africa, USA, Canada and other countries.

The major share of mineral exports in 1989-90 was to Japan at 37%, followed by 14% to USSR, 6.9% to DPR Korea, 4.1% to China, 3.2% of USA and 3.1% to Repbulic of Korea and a minor share in percentage terms to other countries. The potential areas for increasing our exports of minerals and ores are, therefore, those areas of the world where our present share is low. Besides, it is possible to increase our share significantly in the markets of West Asia and neighbouring countries. □

(To be concluded in the next issue)

Leaching Of Saline Soil

Nishi Sinha

IRRIGATION projects involving inter basin transfer of water without adequate drainage have disrupted the equilibrium between the ground water recharge and discharge resulting in acceleration to the ground water table This is the major cause for salinisation in various irrigation commands Millions of hectares of agricultural land in the country have become too saline to economic agricultural production Though salt infestation results in gradual yield reduction the severity of the problem is not fully realised till the crop suffers heavily due to excessive salts In most such cases the land is abandoned for good as the land has become non-productive due to salinisation.

The option left is to reduce the salts to an acceptable level for crop growth by leaching with good quality water. Although subsurface drainage is the key to successful management of water logged saline soil, it is not an end in itself. Post drainage management of water logged salt affected soils through leaching and prevention of secondary salinisation should form an integral part of the reclamation technology Five critical stages could be identified in any leaching programme, that is—preparatory stage, construction stage, leaching stage, leaching cropping stage and normal cropping stage.

Leaching of saline soil is essentially a process whereby water of low salt concentration is applied to displace soil solution of relatively high salt concentration. Excess water is allowed to pass through the rootzone which in turn move the salts away from the root zone through leaching. Leaching is also done to maintain salt balance in normal or reclaimed lands with the objective of long term crop production.

The importance of leaching to reclaim salt affected lands has been recognised since long. There are reports on leaching of salt affected soil by the State Agriculture Departments (Uttar Pradesh) far back in the year 1882 when mild alkali soils were reclaimed by flooding with water for several months followed by paddy transplanting The experiments on leaching behaviour of saline and alkali soils continued to be studied to develop site specific technique for reclamation of saline soil On the basis of these efforts method for salt removal could be identified into three categories. The method of physical removal of salty soils to fields or land not used for agricultural purpose is not being practised. It is now known that leaching alone is the most effective means of reclamation. Flushing has limited application in certain situation. The method of flushing for salt removal differs from leaching in a way that in the former salts are removed by surface washing of the soil as compared to pushing of salts below the rootzone in the latter. In this method salts move along with excess rainfall or irrigation water. as the surface water moves down the slopy land. The water alongwith the salts is removed through a surface drain provided at the tail end. But this technique is useful only under limited situations. Heavy soils are suited to this method of salt removal. Even in these soils limitation on the available slopes, water requirement and the need of a good surface drainage system may restrict the efficient working of this method Because of high water requirement sufficient salt removal and several practical difficulties, use of this technique as a means of reclaiming saline soil is limited.

Removal of salts from rootzone is an important aspect in the reclamation and management of salt affected land and in maintaining long term productivity of irrigated land. For efficient leaching it is essential to level the land and bund the fields to be followed by a shallow or deep ploughing to loosen the hardened surface. Smaller plots are ideal for uniformity of leaching It is difficult to prescribe any specific time of the year for leaching operation since several factors are involved in the process In general periods of low evaporation demands are beneficial though availability of water is the major criterian for identifying the time of leaching In location where water is a limitation, periods just before the rainy season should be preferred because of two reasons The incoming rainy season with excess rainfall will help in leaching of salts with increased efficiency. At the same time ground water table is lowest at this time of the year and therefore salts are leached to a greater depth. As the salts are moved to a deeper level upward movements of salts at a later stage will be slowed down.

Since reclamation is meant to grow crops leaching should be in conformity with the tolerance limits of the crops to be grown. The cost will be high if salts are leached beyond a threshold value as no additional benefits will accrue, because yields stabilise at the threshold

value. Crop tolerant tables can be of help for selecting crops. Once the fraction of soil to be leached is known then the amount of water required could be estimated. A thumb rule that 1 cm. of water should be applied for each centimeter of soil to be reclaimed is the common deciding factor. However the quantity of water may vary with soil texture and fraction of salts to be leached. For medium texture soils (sandy loam) 0.5 cm of water for each centimeter of soil is sufficient to remove 80% of the salts present in the soil profile. The amount of water required to leach a predetermined fraction of salts from known depth of the soil indicate that to leach 85% or 90% salts one would require to pass 0.44 cm/cum and 0.53 cm/cum of water respoectively.

In continuous leaching water is ponded continuously over the soil surface to allow water to pass through the rootzone. In case of intermittent leaching water is ponded at intervals The leaching could be inefficient with continuous leaching because most of the water could pass through micropores and through established channel such as cracks or root channels. The difference between degree of saturation and rate of water movement are also responsible for difference in leaching efficiency. It is known that a net saving of 30% to 35% can be made through intermittent compared to continuous leaching in the amount of water needed to leach the salts to same degree. The contradictory report in many cases need fresh interpretation taking into account evaporation, time interval between leaching and the amount of water applied initially before allowing redistribution. However, intermittent leaching may not be advantageous for highly degraded alkali soils with restricted infiltration rates. The time taken to leach a given fraction will be less in continuous leaching and to save time continuously ponded mode of leaching should be preferred.

Leaching is more efficient with water content below saturation. Rate of application of water to the soil will affect the degree of saturation in the profile. Differences in Leaching due to different rates of water application would vanish provided the redistribution time compensated for the difference in time between the water applied at the two application rates. However this is applicable to the situation where evaporation was not allowed in the experiment and hence this finding cannot be transferred straight to actual field situation as evaporation under field condition is difficult to control. The leaching efficiency increased with decreasing application rate compared to continuous ponding. However depending upon the evaporation rate there may or may not be any beneficial effect when rate of water application is reduced below an optimal level. Leaching efficiency improved with an application rate of 3 cm/day compared to steady state (saturated) and non-steady state (continuous ponding) but it did not improve further with 1 cm/day. In a trial with still higher evaporation rates the leaching efficiency in fact decreased when application rates were reduced from 3 cm/day to 2 or 1 cm/day. The available information on the subject suggests that leaching efficiency with the sprinkles is usually intermediate of the continuous and intermittent modes of leaching. Therefore investment on the sprinkler irrigation sets for this specific purpose may not be necessary as similar situation if needed could be created by intermittent leaching.

In many situation specific ion affect crop yield more than the total salinity. One such ion is chloride which affects citrus crop even at low level. Another specific ion boron is toxic to many crops but is slow moving. These specific ions need to be evaluated and crop tolerance to these ions should be taken into account in deciding fraction of leaching. Chloride is leached much faster while boron is slow to leach and requires two, three times more water than required normally to leach soluble salts. However under Indian conditions boron requires high amounts of water for leaching. This may be because Indian soils are absent in high level of boron. Moreover application of gypsum to alkali turns boron into insoluble form thus making it ineffective to plant growth.

In arid and semi arid regions having salt affected soils ground water is of relatively poor quality and fresh water is in short supply. These areas offer greater potential for the conjunctive use of saline and fresh water for crop production. Conjunctive use of water should be undertaken if the electrical conductivity and sodium absorption ratio of the saline water is less than the salinity and sodium absorption ratio of the soil. Fresh water should be available in adequate quantities following application of the saline water. With conjunctive use total quantity of available irrigation water (saline + fresh) increased by 18-33 per cent with a net saving of 18-40 per cent in the fresh water requirement. Exact quantity of saving depends upon initial soil salinity, ground water salinity and the quantity of the ground water applied.

Rainfall is of paramount importance in leaching saline soils or soils irrigated with saline water. In the Indian context rainfall during monsoon substantially affects the annual salt balance. Intensity and duration of rainfall, duration of dry spells between the two rain events and soil condition including initial salinity and its distribution in the profile, initial water content at the time of rainfall and land management practices like land levelling, bunding and surface soil condition affect the efficiency of rainfall. Levelling and bunding alone improved the rainfall

CROP TOLERANCE TO SOIL SALINITY FOR WORKING OUT LEACHING REQUIREMENT

Sites	Soil type	Crop	Threshold (ds/m)	Slope (%)	EC (ds/m^{50})
Sampla	SL	Wheat	4 0	29 0	5.7
		Mustard	6 0	15 0	9.3
		Barely	7 0	19 0	9 6
Karnal	SL	Mungbean	1 8	20 7	3 3
		Mustard	3 8	6.9	11 0
		Sorghum	2 2	10 6	6 9
Agra	SL	Wheat	8 2	19.8	10 7
		Mustard	6 1	20 7	8 5
		Berseem	3 5	12 5	7 5
		Potato	4 4	16 1	7 5
		Tomato	1 3	6 5	9 0
Dharwad	BC	Wheat	2 3	20 5	4 7
		Safflower	2 8	20 7	5 2
		Sorghum (W)	2 1	3 9	14 9
		Italian millet	6 1	50 0	7 1
		Sataria	1 1	2 2	23 9
Indore	BC	Berseem	2 0	11 2	6 5
		Safflower	2 8	5 0	12 8
		Maize	0 5	7 9	6 8
Chalakudy	LS, SL	Transplanted rice	0 6	2 7	19 1

W = winter season

contribution to leaching by 40-50 per cent. The leaching effect per unit of rainfall is relatively low in humid regions (coastal saline soils) because of intense storms resulting in high run-off.

In most saline soil, soil salinity is too high for crop growth. For crop production, tolerant varieties of crops are identified so that cropping could be possible A common belief that more salt tolerant crop should be grown during initial years should be viewed more in the context at the irrigation requirement of the crop to be grown. There is every likelihood for the surface salinity to increase if Barley is grown as the first crop compared to others like wheat, with relatively more water requirement. Similarly rice which is often considered unsuitable for these lands mainly because of the constraints of the water availability and its less tolerance could greatly modify the salt status in the profile. Because of liberal requirement of water in case of rice, crop salinity could be significantly reduced and its benefits to subsequent crops could be immense. It is recommended that one rice crop should be included in the long term crop rotation on such land even after the lands have been reclaimed.

The effect of varying amount of water applied for leaching is that yield increased with increasing amount of water applied except in case when the soil salinity was in the low range. It is mainly because once the threshold salinity is reached there was not much beneficial effect. Without leaching establishment of the subsequent crop was difficult and germination in plots without leaching was poor. The other aspect is without drainage the secondary salinisation is quite high and may interfere in crop production. It is, therefore, apparent that sub-surface drainage and leaching are essential to reclaim water-logged saline soils.

The type of soil salinity level at different depths, location of the hard pan with respect to ground surface and depth to water table at the time of leaching are some of the factors that could be modified to influence leaching. For modifying leaching certain things are suggested. Such as subsoiling improves infiltration rate, removes or reduces the natural channel. Tillage with inversion improves infiltration rate of the soil as it physically moves the surface accumulated salts to lower depths. It improves infiltration rate, controls surface crusting and maintains soil structure. Breaking hard pan improves water movement and reduces chances of water table build up. Irrigation practices improve leaching efficiency by controlling the moisture content. Situations resembling intermittent leaching could be created.

One can say that sub-surface drainage and leaching are the two essential components of the reclamation process of water logged saline soil. Leaching should be practised extensively in States like Punjab, Haryana and Rajasthan to reclaim saline land in a big way. □

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Apiculture In North Eastern Region

Dr. A.N. Sarkar

THE North Eastern Region, with rich natural endowment of forests, orchards and wide ranging field crops and other flora, offers immense potentialities for growth and development of Apiculture (bee-keeping). Honey is regarded as a highly nutritional and medicinally important food. The average composition of quality honey comprise· Levulose (40.50%), Dextrose (34.02%), Sucrose (1.90%), Dextrines (1.51%), Protein (3 00%), Organic acids (0.08%) and Water (17 70%). However, such a composition would vary depending on the type of feed substrates and quality of honey itself. In addition to these major constituents, honey contains traces of iron, calcium, sulphur, sodium, magnesium, potassium, mananese, phosphates etc. as well as vitamins like A, B1, B2, B6, C & K.

Besides production of honey, honey bees increase crop production to the tune of 10-25% by effecting cross polination Important fruit crops like orange, lemon, lime, grapes, mangoes, peach, pear, plum, black berries, straw berries etc. and vegetables like cauliflower, coriander, cucumber, melon, pepper, pumpkin, water melon etc. and some of the oilseeds such as mustard, rape, sesamum, sunflower etc. are greatly benefited by visit of honey bees in terms of polination and yield of crops. The symbiotic effect between honey bees and host plants benefited by polination results in synergistic response on yield: both for honey and the plants ensuring higher farm income to the farmers.

As an occupation, Apiculture is unique in many ways, since it does not involve much capital investment and use of complicated technology Maintenance of healthy bee colonies, bee boxes and other minor simple bee-keeping implements are essential components to start bee-keeping. Because of relative simplicity in technique/skill required for operation and maintenance and low cost, bee keeping provides for full time employment in case been keeping is taken up on a commercial scale by maintaining a few hundred bee colonies. In the event of a commercial venture, besides honey, bee wax and bee venom can also be extracted on commercial scale.

Generally speaking, the tribal communities of the Region have been practising bee-keeping in a traditional way using claypots, log hives etc. for centuries So, it would be easier for them to switch over to modern Apiculture using movable frame bee-hives, automated honey extractor etc. with suitable training and Demonstration This can be an attractive profession for rural women, small and marginal farmers, landless labourers, young entrepreneurs etc. ensuring good rural self-employment opportunities.

Bee Species

Different types of honey bees have been recognised in the North East, differentiated and identified on the basis of their size, morphology, habitat and insect behaviour. Out of these, four species have been identified to be the dominant species in North East India; namely (a) *Apis floria*—the little bee (b) *Apis dorsata*—Rock bee, (c) *Apis cerena indica*—Indian bee and (d) *Apis melifera*—the Italian bee.

The species *A. floria* builds up a single comb nest—measuring 75 x 30 cm. mostly available in plain areas and the colonies migrate frequently from one to the next habitat. Colonies are covered by more than one layer of bees and honey production per colony is about 250 gms

The species *A dorsata* is usually called the Rock Bee or Giant bee. The colonies of this species are found in plains as well as in the hills upto 1,500 metres m.s.l Rock bees form single comb which remain suspended from rocks, ceilings of uninhabitated house and branches of trees The comb in hexagonal in shape measuring about 2 00 x 1 20 m. This bee species despite ferocious tempartment is an efficient honey collector with honey yield going upto 50 kg per colony.

Apis cerana Indica is a typical Indian honey bee species which allows domistication under all kinds of captivities ranging from hollowed cut logs, wooden boxes, packing boxes, mud recepticles etc. This bee species is easy to handle, docile in tempartment and responds to smoking Honey yield varies from 8 to 10 kg per hive per annum.

A. melifera, a native of Italy and found all over Europe. It is a commercially successful honey bee all over the globe. It is larger in size than other indigenous species having wider pollinating range and capable

of producing larger quantity of honey. This bee species has low swarming instinct and virtually no absconding tendency. This species was first introduced in 1960s and found to be successful in the States of Himachal Pradesh, Jammu & Kashmir, Punjab, Haryana, Orissa and Bihar. The average honey production is 25-30 kg per colony per year Testing of performance of this species is under investigation in the Apiaries of the Department of Entomology, Assam Agriculture University under an All India Co-ordinated Project on Honey Bee Research and Training at Jorhat. In a comparative study of foraging rate involving honey bee species and lichi flowering plants it was observed that the *A. melifera* has the highest ability of foraging which directly accounts for its highest honey production efficiency as may be seen from following table.

Insect Species	*Foraging rate (No of flowers visited per minute)*
Apis melifera	— 8 76
A. cerana indica	— 3 12
A. dorsata	— 1 35
A. florea	— 1 02
Vespa magnifica	— 1 32
Other Hymeoptera	— 0 51
Diptera spp	— 0 42

Besides water, honey bees thrive on nector and pollen gathered from visiting host plants Pollen or nector being a sugar and protein-rich natural substrate, it allows a quick convertibility into honey. Shifting or swarming—which is basically a regrouping phenomenon takes place in the quest of natrual abundance of this food source Colour and quality of honey (including granulation) is dependent on the type of flowering plants visited by honey bees. Fruits, vegetables and ornamental trees/ plants are major sources of pollen and nector. The dominant plant species in North Eastern context include: citrus, banana, lichi, guava, jaman, ber, mango, cashewnut, carrot, corrianlu, mustard, cucurbits, corn flower, hollyhock, honey suckle, poppy, sunflower etc.

Honey bees are environmentally friendly and social insects. They colonize in a highly organised system with clear division of labour. The bee colonies have three kinds of bees with distinctive division of labour. These three types are queen, workers and drones. The queen is the developed female and is the mother of the colony. The worker bees are imperfectively developed females and hence unable to reproduce. They, however, perform all the duties in the hive according to division of labour and take special care of queen bees as well as her off-springs. The drone is the male bee and this helps in propagation with the help of queen bee. In a normal colony there is only one queen and 30,000 workers and a few hundred drones.

Swarming by the bees is a natural way to satisfy their urge for propagation as bee colonies are increased through swarming

Apiary Equipments

Modern apiaries involve rearing of bee colonies in well designed bee-hives These are specially designed on the principle of optimal "bee space". Such a concept was first coined and introduced by Rev. L.L. Longstreth in 1851 in the USA. According to this principle sufficient breathing space is provided between the frames, between top bars of the frames and inner cover and between the frames and inner walls allowing free movement of honey bees Becuase of bee space, the parts are not attached to each other

The hive is composed of bottom hoard, broad chamber frames, super chamber, super chamber frames,inner cover and top cover. In most countries, 44.1 cm x 13 cm spacings have been adopted as standard. In India, different types of hives with different bee space have been adapted for different species of honey bees to suit local conditions. In view of wide ranging insect behaviours, swarming habits and size of of the bee colonies, there is a need to standardize the dimensions of the frames in the bee boxes; species-wise. The Department of Cottage Industry as well as Khadi and Gram Udyog Centres have developed and standardised frame dimensions and designs that are meant for sale and distribution in a pre-determined price to bee-keepers.

For commercial venture the following equipment are used in modern apiculture centres in the North Eastern Region: Bee-hives (a) Newton type for Asiatic spp. (indica bee), (b) Longstroth type for Western spp. (melifera bee), queen excluder, wire embedder, bee viel, smoker, swarm catcher, uncapping knife, honey extraction equipment (combined with processer & dehydrator), comb foundation mill, brushes for clearing, feeder and queen cell protector

Formal training on modern bee-keeping should form an integral part for any commercial venture both for traditional bee-rearers and enterprising new entrepreneurs In North-East, such training opportunities are available in a regular manner in the Field Research Station of CBRI Unit at Khetri, Kamrup District, Assam and under the All India Coordinated Project (ICAR) on Honey-bee Research and Training at Assam Agriculture University Campus, Jorhat. Under the training programme, short term courses (one month) are offered to bee-keeping demonstrators and traditional bee-rearers for special skill development. Under the second cetegory, three months training is rendered to commercial entrepreneurs and unemployed youth.

Training

The training programme includes imparting knowledge, skill and demonstration on such aspects as: importance of bee-keeping, bee-species identification, honey-bee

colony characteristics, colony organisation, insect behaviour of honey-bees, bee-hive and other apiary equipment and their handling, routine apiary management practices, seasonal management, handling of colonies, disease and insect management and control, honey production and quality control, bee wax and its industrial use, bee flora, floral calender and cycle etc.

Management is the key to success of bee-keeping industry. Training imparted on various aspect of bee-rearing can be fully utilised, when management of apiaries is fully planned. Ideally, it is better to start apiary with a few promising bee-colonies with proven performance and gradually build up the stock in a phased manner. Proper management of apiary does mean extreme care and proper management during dearth period to off-set the tendency of swarming, absconding and effective control against invading diseases and insects. Various precautionary steps and control measures that are taken for modern apiary management include: swarm control, rearing and timely displacement of old exhausted queen bees, de-queening and requeening, control of natural enemies (viz. wax moth, predatory wasp etc.) and control of brood diseases (viz. American Foul Brood, Thai sac Brood, Europian Foul Brood, fungal and Nosema disease).

Taking full advantage of vast reserve of evergreen forests, horticultural and plantation crops and seasonal crops and vegetables available in NE Region, bee-keeping technology has already taken its natural root in the region. Though, initially, bee-keeping was being practised in an unorganised manner, of late this has been treated as an established cottage industry. For example, Khadi & Village Industries Commission had undertaken the task of introduction and development of modern bee-keeping in this region way back in 1957. KVIC's programme for promoting bee-keeping includes imparting training at all levels, providing grants and loans for establishment of small and medium size apiaries by individual artisans, financial assistance for migration of bee-colonies according to major floral resources, introduction of bee-keeping as a craft in school, small institutions etc.

With regard to organisational structure in NE Region, KVIC with State Offices at Guwahati, Dimapur and Agartala; Regional Office at Shillong, Itanagar, Kohima, Imphal and Aizawl and sub-offices at Shillong and Kokrajhar, is sufficiently equipped for implementation and co-ordination of apiculture programmes in the region. Apart from KVIC network, 7 Khadi & Village Industries Board (under the Department of Industries), one in each State, and Directorate of Agriculture & Extension have also taken up Apiculture Development Programme at flied levels in all the NE States

According to available information, the approximate number of bee colonies in existence and honey production achieved during 1989-90 for the NE States are estimated as given in the table.

As opposed to potentialities, the current production level of honey in the region is extremely low, allowing a great scope of rapid expansion of the programme in the region

In the existing apiculture programme, the dominant existing species of honey bee is *Apis Carona, Indica.* This species of honey bee has been found to be a victim of attack since 1980 by a dreadful disease called "Thai Sac Brood". The disease is estimated to have destroyed 15,000 bee colonies kept in apiaries and probably thousands of wild bee colonies as well throughout the region affecting honey production to the extent of 60-70,000 kg resulting in an annual loss valued at Rs. 4.5-5.0 lakh. In this manner, this dreadly disease has been systematically destroying several thousands of bee-colonies (both domestic and wild species) for the past ten years and as a result, a large number of the bee keepers have already abandoned bee-keeping altogether thereby increasing poverty and unemployment in sections of rural areas of North Eastern Region.

In a situation like this, a possible remedy seems to be introduction of *Apis Melifera* (Italian bee), which has already been tried and found successful in the States of Haryana, Punjab and parts of Uttar Pradesh and Himachal Pradesh This strain of bee, unlike the indigenous *Apis Cerana, Indica,* is immune to "Sac Brood" disease Establishment of a Central Bee Nursery by introducing *Apis Melifera* colonies can go a long way in setting up of modern bee-keeping industry on commercial lines in the region The Central Bee Research Institute, Pune, which is an R&D establishment under KVIC,

Name of bee State	No. of the colonies	Quantum production of honey in 1989-90 (in kg)	Sale value (Rs. in lakh)
Arunachal Pradesh	1,200	6,357	1 91
Assam	34,406	3,64,411	100 31
Meghalaya	10,965	54,825	16 45
Manipur	28,802	99,536	29 86
Tripura	1,089	1,020	0 31
Nagaland	3,257	11,729	15 17
Mizoram	338	9,285	2.79
	80,057	5,47,163	166 80

(Contd. on page 25)

Vegetables Production In Mizoram

Dr. A.K. Pandey & Dr. R.P. Shukla

IN Mizoram, production of vegetables during 1990-91 was estimated to be 37,635 tonnes, while the requirement is estimated at about 55,000 tonnes. Although majority of the people of the State is non-vegetarian and they consume less vegetables, still the production of vegetables is so low that it cannot meet its own requirement and it is dependant on nearby States of Assam and Meghalaya

The State has peculiar physiography mixed with hills and plains, intercepted by rivers, streams and slant slopy hills with elevation ranging from 30 metres to 2,210 metres above m.s l. The State has varied climate—cool and humid sub-tropical type climate occurs over the lower altitudes The annual mean rainfall is around 2,640 mm spreading over from last part of April to October through South West monsoon. The relative humidity is high throughout the year and it increases as high as 90 per cent in the peak monsoon season The climate of the State is mild, not too hot in summer; nor too cold in winter In high hills the average summer temperature varies from 20°C to 23°C and between 8°C to 19°C in winter, whereas in low hills and valley the temperature fluctuates from 22°C to 33°C during summer and 15°C to 21°C in winter. The whole State is almost free from hazards of snowfall in winter and hot wind in summer

Below Average

Vegetables status of Mizoram in respect of area and production is far below the national average. According to the available informations, vegetable crops occupy only about 0.69 per cent of the total cultivated area of the State It is encouraging to note that lately more attention is being paid by the Department of Agriculture, Government of Mizoram on vegetable cultivation The total area under vegetables which was only 1831 Ha during 1987-88, increased to 4,770 Ha in 1989-90.

In Mizoram, Cho-cho (Sechium edule), a type of squash having perennial growth, thrives well at higher altitudes and its annual production during 1990-91 was estimated to be about 20,000 tonnes with per hectare productivity of 35 45 tonnes and ranked 1st in terms of production. Cultivation of pumpkin is very popular in kitchen gardens as well as in jhum lands. Its production during 1990-91 was 4,127 tonnes and ranked 2nd after cho-cho Cabbage is generally grown and during 1990-91 its production in 223 ha area was 1390 tonnes with the average productivity of 6 23 tonnes per hectare Tomato, brinjal and chillies are also grown. Cultivation of brinjal is very popular and it is available in the market almost throughout the year

The productivity (tonnes/ha) of all the vegetables, except cho-cho is quite low at present against the average productivity of the country The average productivity of the vegetables in the country is 12.30 tonnes per ha whereas the State average is estimated to be only 8 48 tonnes per ha

Future Strategy

The following strategy may be tried for enhancing vegetable production the State

Table 1

Improved vegetable varieties recommended for cultivation

S No.	G. Crops	Varieties
1	Beans (bush type)	Contender
2	Beans (pole type)	Mize SI 2
3	Brinjal	Azad Kranti, Pusa purple long
4	Cabbage	Pride of India
5	Carrot	Pusa Kesar, Early Nantes
6	Cauliflower	Snowball-16
7	Garden Pea	Arkel, Bonneville
8	Knol-Khol	White vienna, Purple vienna
9	Radish	Japenese white
10	Tomato	Pusa ruby, Marglobe
11	Turnip	Pusa Kanchan

(i) At present only 0.69 per cent area of the total cultivated area of the State is under vegetable cultivation, while there is vast area under shifting cultivation. The area under vegetables should be expanded.

(ii) Kitchen gardens should be encouraged.

(iii) In Mizoram, there is dearth of ground water. So providing irrigation after monsoon season is difficult and it affects the production of winter season vegetables. However, there is good land below the valley and that can be utilized for vegetables production in winter season. Different types of mulching materials like-Sungrass, Paddy straw and Jungle plants which are easily available can be used as much for vegetables production under low moisture stress conditions.

(iv) Tribal farmers should be provided more information about new seeds and their growing techniques.

(v) Development of varieties having characters for growing in high acidic soil conditions and under low moisture conditions may be initiated.

(vi) Proper attention should be paid for fertilizer application which is very limited in the State.

(vii) Proper care should be taken for plant protection measures to control the pests and diseases of the vegetable crops.

(viii) Suitable credit support may also be provided to vegetable growers so they are able to purchase the required inputs at appropriate time in required quantities. □

The authors are Scientist and Joint Director respectively of ICAR Research Complex for N E H Region, Mizoram Centre

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(Contd. from page 23)

has been running a bee-keeping experimental station at Khetri, Nowgoan District, Assam Given adquate support, the Centre may be strengthened to enhance capabilities so as to be able to supply required number *Apis Melifera* colonies to seven NE States annually.

Another problem faced by the bee keepers of this region concerns marketing of honey in acceptable price. The main limitations associated with the problem is the difficulty in grading the honey meant for marketing. As such, production of quality honey followed by compulsory Agmarking should be the first step in tackling the marketing problem With a view to achieving this, followed by quality testing of the product by way of strengthening the existing testing laboratories maintained by State Government, would be crucial to development of apiculture in the small scale sector

Joint Venture

Recently, a technical group consisting of experts from CBRI, KVIC, AAU, NEC had gone into some depth looking into the possibility of taking up pilot programmes for quality honey production by introducing *Apis Melifera* in certain selected and potential areas of North East. Based on preliminary survey of resource base, the group has made certain specific recommendations in respect of locational suitability for setting up a Composite Training and Demonstration Centre, nucleus bee nurseries; honey production, testing and quality control unit etc. Based on this, KVIC has drawn up a project on apiculture development for joint funding between NEC: KVIC.

The project broadly aims at strengthening, expansion and qualitative upgradation of existing apiculture Development programmes by way of creating additional facilities and providing incentives in the form of training, financial and technical input support to NE States, establishment of pilot scale modern apiaries involving participations of traditional bee-keepers and entrepreneurs in the rural areas In order to achieve these objectives the following programmes are proposed to be implemented under the Project during the VIIIth Five Year Plan

A. Setting up of two Central Apiculture Nurseries

B Establishment of a Model Apiculture Demonstration-cum-Training Centre.

C Setting up of Pilot Scale Commercial Apiaries through EDP.

D Setting up of a Honey Processing Unit (70 MT capacity) and creation of Centralised Quality Contral & Testing facility.

To begin with, 100 *Apis Melifera* colonies brought from CBRI centres will be multiplied to develop 400-500 bee colonies in two Bee Nurseries in a period of two years Simultaneously, 50 traditional bee rearers will be trained. Necessary counselling, infrastructural, material and equipment support will be extended to entrenreneurs to help establish commercial apiaries.

Initially, entrepreneurs will be trained covering three States. When the project becomes fully operational the other N.E States will be included in the project with regional ramifications The target for setting up of pilot scale commercial apiaries will also be increased correspondingly.

Honey produced by the commercial apiaries and those produced by the traditional bee rearers will be collected, processed, quality tested (conforming to BIS) and marketed. These activities will be handled by private, cooperative sector, voluntary agencies etc. and coordinated through KVIC network □

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A Glorious Feat

D.K.B.

IT was a glorious feat indeed, an incredible achievement which thrilled the entire Indian mountaineering fraternity and brought immense pride and joy to all Indians. Seven young Indian women climbers set their feet atop the world's highest peak within less than a week as members of the all-women Indo-Nepalese Everest Expedition 1993, which was led by India's first woman Everester Bachendri Lal. How prophetic was India's first Prime Minister, Pt. Jawaharlal Nehru, when he uttered as early as January, 1961, the following words:

"The spirit and the lure of the Himalayas is spreading now all over Indian among our young people, and that is a sign and a symbol of the new life and the new spirit that is coursing through India's vein."

No doubt, this very same spirit has inspired our women mountaineers to accomplish what was considered not so long ago as unconquerable and unattainable. On Monday, May 10, 1993, young Santosh Yadav, an officer of the Indo-Tibetan Border Police, along with two of her compatriots—Kunga Bhutia and Dicky Dolma—scaled Mount Everest and in the process became the only woman in the world to conquer this awe-inspiring mountain peak twice. Only last year, precisely on May 12, 1992, Santosh had ascended Mount Everest as a member of ITBP expedition and had become India's second woman Everester after the legendary Bachendri Pal. Another record was created by the teenaged Manali girl Dicky Dolma, who became the youngest climber in the world to set foot on the Everest summit. She is only 19.

Six days later, on Sunday, May 16, 1993, four more Indian women—Dipu Sharma, Radha Devi, Suman Kutiyal and Savita Martoliya—successfully scaled the fearsome Mount Everest. It was really a big triumph for the all-women Indo-Nepalese expedition as it created another world record by putting 18 climbers atop the world's highest peak including seven Indian women. Others were male technical instructors and sherpas. These girls have shown to the world that Indian women are second to none in grit and determination.

To the outsiders Mount Everest may be merely the highest landmass of the planet, but it has a special place in the hearts of all Indians. The Himalayas have greatly influenced India culturally, socially and economically. Life without these snow-capped lofty mountains is simply unthinkable. Mount Everest was the last bastion to be conquered by the indomitable mountaineers. After the first World War, the British mountaineers made the conquest of Everest as their particular goal, but they could succeed only in early fifties. Two members of a British expedition led by Col. John Hunt created history when they successfully scaled Mount Everest on May 29, 1953. They were New Zealander Edmund Hillary and Tenzing Norgay, the Sherpa guide.

After the British expedition's success in 1953, members of a Swiss expedition in 1956, Chinese expedition in 1960, US expedition in 1963 and Indian expedition in 1965 scaled the mighty Everest. In fact, the first two Indian Everest expeditions ended in failure. The first Indian expedition was led by Brigadier Gyan Singh in 1960 and the second by Major John Dias in 1962. However, lady luck smiled on the third Indian expedition led by Captain M.S. Kohli in 1965 and nine members of this expedition in four successive teams in nine days in May, 1965 were scaled the lofty mountain peak on earth After a long gap of 19 years, five members of the fourth Indian expedition led by Col. D.K Khuller, Principal of the Himalayan Mountaineering Institute, Darjeeling, successfully scaled the Everest summit in 1984. These climbers included the first Indian and world's fifth woman Everester Bachendri Pal. Last year, the Indo-Tibetan Border Police expedition added another golden chapter by conquering the mighty Everest.

No doubt, once inaccessible Mount Everest has been conquered by the indomitable spirit of man many times by now, but its fascination is as irresistible as ever. It will continue to attract mountaineers from the world over as it still offers the stiffest challenge to the climbers. But the gritty women mountaineers like Bachendri Pal, Santosh Yadav and the teenaged Dicky Dolma will be a source of inspiration to other Indian girls to attempt and accomplish even bigger and tougher tasks in mountaineering as well as other walks of life. □

(Courtesy: AIR)

Drinking Water Supply In Rural Areas

PROVISION of safe drinking water facilities in rural areas is primarily the responsibility of the States. However, the Central Government has been giving top priority to this core sector of meeting one of the fundamental needs of rural masses. Technical and financial assistance has been provided under the Accelerated Rural Water Supply Programme (ARWSP) which was introduced in 1972-73. With the introduction of rural water supply under the Minimum Needs Programme (MNP) in 1974-75, ARWSP was withdrawn but this was re-introduced in 1977-78. In order to give a further boost to the programme, National Drinking Water Mission was launched in 1986. The Mission has now been renamed as Rajiv Gandhi National Drinking Water Mission

With the joint efforts of the States/UTs under the State sector MNP and the Central assistance under ARWSP and the Mission, it has been possible to provide safe drinking water facilities to 75.41% of the rural population by the end of 1991-92. This has been possible with the special central assistance of about Rs. 178 crore given specifically for coverage of No Source problem villages.

With the coverage of about 94,000 problem villages till the beginning of VI Plan and resurvey carried out by States and Union Territories for identification of problem villages, about 2.31 lakh problem villages remained to be covered as on 1.4.1980 out of which 1.92 lakh villages were covered in the VI Plan and the balance 0.39 lakh spilled over to the VII Plan. PVs were again identified through a fresh survey conducted in 1985 and as a result 1 62 lakh PVs remained as on 1.4.1985 to be covered in VII Plan.

About 1 54 lakh problem villages were covered during the Seventh Plan, in addition to 1 92 lakh villages covered during the Sixth Plan. Out of the balance of 8,365 problem villages of the total of about 5.83 lakh villages in the country, 3,032 were covered in 1990-91 and 2168 in 1991-92. The target for coverage of 'No Source' problem villages in 1992-93 is 2,968 and partially covered villages as 31,500. The actual achievement reported by the States/UTs based on the reports recieved upto February, 1993 is 1,469 'No Source' problem villages and 23,500 partially covered villages. About 600 problem villages are likely to spill over to 1993-94. However, the target for partially covered villages is likely to be achieved. The target for 1993-94 has been provisionally fixed at 42,000 villages including spill over 'No Source' problem villages.

Under the scheme, a total of Rs. 2,961 crore has been utilised during the Seventh Plan and in 1990-91 and 1991-92. In addition, an expenditure of Rs. 3,751 crore has been utilised under the MNP in the State Sector. For 1992-93, an outlay of Rs. 460 crore was provided under ARWSP, Rajiv Gandhi National Drinking Water Mission, etc. in addition to the outlay of Rs. 811.31 crore under MNP in the State Sector. For 1993-94, an outlay of Rs. 740 crore has been provided and Rs. 819.85 crore is under MNP in the State Sector. Allocations for Eighth Plan for Drinking Water Supply in rural areas is Rs. 4,954.52 crore under the State Sector MNP and Rs. 5,100 crore under the Central Sector.

Special emphasis is given on provision of drinking Water facilities for SCs and STs. Apart from the provision under the State sector special component plan and tribal sub-plan and earmarking of funds under ARWSP for a minimum of 25% for SCs and 10% for STs, the Central Government has also been giving special assistance in order to accelerate the coverage of the weaker sections with safe drinking water facilities. Special assistance of Rs. 19.80 crore was given in March 1990. Similarly, special assistance of Rs 58.94 crore was released in 1991-92 and early part of 1992-93 as part of Dr. Baba Saheb Ambedkar Centenary Programme

Special emphasis is also given on the quality of drinking water supply. Under the Sub-Mission on Eradication of Guineaworm, it has been possible to bring down the number of affected villages to 1906 and affected cases to 563 as on 1.1.93. The problem is likely to be eradicated by the end of 1993.

Under the Sub-Mission on Control of Fluorosis, setting up of 481 defluoridation plants was approved. Out of this, more than 260 plants have already been commissioned. An awareness campaign for imparting health education and the importance of use of drinking water free from excess fluoride has been launched in 150 districts in 15 States.

(Contd. on page 29)

Review Article

Management

M.K. Ghoshal

AN extra-ordinary book from a scholar who is gifted with twin wisdom of economics and philosophy. He is fully aware of grass-root realities as well as opportunities and challenges. What makes him different is his vision. He believes in setting laudable goals to be achieved by only pious means. In a way, like Gandhiji he strongly advocates purity of action and condemns the opposite view that the end justifies the means. His approach to management reflects a point of view far from prejudice.

Prof Simha rises above professionalsm to give management and its related issues—a novel treatment He is neither critical nor analytical in his observations on the most sought-after subject. His style is conversational and language simple. His book has the semblance of a story that neither thrills nor chills but leaves a lasting impression with a clear message. 'follow Dharma all the way'. Surely, it is meant for general reading by educated people from different walks of life including company Managers and Chairmen, bankers, judges, college principles and vice-chancellers, bureaucrats, ministers, members of parliament and legislators.

In all, there are eighteen chapters beginning with "Introduction" and ending with "Management: A Process of Integration". Management is a key word which means a lot and is most widely used. It was as much relevant in the past as it is now; mainly to emphasise success in the business and commercial ventures. Students of economics are aware that of the four factors necessary for production of wealth, namely, land, labour, capital and organisation the last one is a combination of entrepreneurship and management, the latter gaining in importance in post-second World War competitive economic environment. Management is needed not only to run a factory for profit but also a household for happiness. It is a 'must' within and outside government.

What are its fundamentals? Beginning with acquring knowledge and skill and applying the same to the best advantage, management calls for planning, organising, leading, motivating, co-ordinating and controlling. these ingredients of management are not mechanical functions of a manager A strong ethical and spiritual basis summed up in the Indian concept of 'Dharma" for all work performance and for discharging one's duties is absolutely necessary, says Prof. Simha. The management function involves a dynamic process of communication, decision-making and leadership with "Dharma" as the main driving force in all activity, endeavours and aspirations-business, non-business or personal. Dharma is a Sanskrit word and its dictionary meaning is the righteousness that underlines the law. Literally it means something which supports and holds together. It is a code of laws or principles. Doing one's duty with efficiency and devotion, striving for excellence, not being motivated by profit alone, subjugating personal ends for the larger benefit of the group, organisation, institution, community and the country, caring for fairness, justice and equity are some of the cardinal principles of Dharma which apply with equal force in all spheres of life including industry, business, commerce, government, semi-government and corporate sectors. Prof. Simha has placed Dharma on a practical footing in support of his thesis for combining the same with dynamic modern concept of management.

Management needs are not confined to business/industrial houses alone but also extend to non-business or quasi-business organisations like hospitals, schools, colleges and universities. Manager is the key figure and much depends on how he conducts himself in discharging his managerial functions That again depends mainly on how he has groomed himself for the job. His duties are onerous and he has to deal with his men as their leader. He should excel in the art of communication, be able to judge people's abilities, create healthy work environment, provide training and other job improvement facilities, introduce suitable organisational pattern, pay due attention to production, marketing and financial management, co-ordinate the activities of the different units/wings in a business organisation and finally exercise overall control. He has to face challanges, exploit opportunities and deal with crisis situations. On all vital issues he is required to take decisions one way or the other and assume responsibility

MANAGEMENT WITH DHARMA ALL THE WAY by **Professor S.L.N. Simha, Founder Director, Institute for Financial Management and Research (IFMR) Published in January, 1992 by I F M R, 30 Kothari Road, Nungambakkam, Madras-600 034. Pages 336 Price; Inland Rs 150; Foreign US $ 15.**

for the consequences. At the national level, the Prime Minister fits into the manager's role.

Planning is an integral part of management. It is a continuous process and is needed not only to set up an enterprise but also to run it efficiently. Adequate attention should be paid to evolve an appropriate strategy of implementation so that the operational plan relating to production, operating efficiency, absorption of new technology, marketing, human resource development, employee welfare, consumer protection, environment conservation etc. gets executed in all earnestness. Monitoring reinforces planning and implementation system by introducing flexibility and adaptability to meet the requirements of changing environment

Prof. Simha concludes his writing by projecting management as a process of integration of various objectives, faculties, techniques, strategies, resources, personalities, temperaments, emotions, interests, time horizons, material, ethical and spiritual values, risk and caution, reasoning and intuition, change and stability, modernism and conservatism, the new and the old, of family and business life, individual interests and community welfare. According to him, management is much wider than just business management and encompasses Government—central, state, local, its individual organs such as the legislature, the executive and the judiciary, business corporations, educational institutions, political parties and finally family and home. The process of integration involves harmonisation of conflicting interests as also pooling of talents and resources for effective and efficient attainment of social objectives

The author accords top priority to planning and leading functions in management while treating organisation and control as secondary elements. Better integration leads to higher quality management, which in turn results in greater success and more prosperity. Developed economies of U.S.A., Germany and Japan demonstrate the beneficial fall-out of good management whereas dismal economic performance in developing Third World countries is attributed, among other things, to poor quality management. The leading countries also adhere to a code of business ethics and work culture, comparable to Indian concept of Dharma, in the management of business and economy. Surely there is no substitute for good management. In this context, Prof. Simha's perception that management with its root deep in Dharma holds the key to socio-economic development in India does not sound entirely utopain. □

(Contd. from page 27)

Under the Sub-Mission on Control of Brackishness, setting up of 152 desalination plants was approved with special central assistance 137 plants have already been commissioned The affected villages are covered with alternative safe sources Treatment plants are sanctioned as a last alternative wherever other cost effective alternative sources are not feasible As regards removal of excess iron, setting up of 11,908 iron removal plants was approved as against which more than 5,000 plants have been commissioned The problem is mostly in North-Eastern States, West Bengal, Bihar and Orissa

With the coverage of identified No Source problem villages, adequate importance is now given to coverage of habitations/hamlets All the States/UTs were requested to conduct a fresh survey of status of drinking water supply in rural habitations in 1992 The survey is being conducted in two parts—part I relating to drinking water situation in rural habitations and part II about the quality of drinking water used by the rural masses The report is likely to be available by the end of June 1993

The new strategy for the VIII Five Year Plan is oriented to tackling the problems of drinking water supply based on the results of the fresh survey. 115 district level laboratories and 17 mobile laboratories have already been commissioned All the States/UTs have also purchased potable water quality testing kits. It is proposed to set up one water quality testing laboratory in each district in the country before the end of the VIII Five Year Plan. The main objective during the VIII Five Year Plan is to cover the unserved and under-served rural population and for better management of operation and maintenance of water supply schemes with active involvement of the community, particularly the women, human resource development and better S&T and R&D inputs in the sector □

Book Review

METHODOLOGY FOR POPULATION STUDIES AND DEVELOPMENT edited by Kuttan Mahadevan & Parameswara Krishnan; Sage Publications, New Delhi; pp 469; Rs 375.

THIS volume contains 20 contributions from Indian, American and Chinese scholars, sociologists and demographers. Most of the papers were presented in a seminar held in honour of Dr. N. Krishnan Namboodiri, Lazarus Professor of Sociology at Ohio State University, who also happens to be a methodologist, social demographer and statistician. It is a comprehensive book on substantive and methodological aspects of population and development. The papers included in this volume explore and focus on various aspects of research methodology in population studies and development.

The entire volume is divided into five parts: theory and research design, interdisciplinary methods, third world development, models for data analysis, projection and old age survivorship and action research.

In the first part, Hubert M. Blalock examines the implicit theoretical assumptions in a research design. K. Mahadevan presents an overview of the various theoretical frameworks in social demography emphasizing his own contribution to the study of mortality and fertility. Modelling is the subject of J. Jayachandran's paper. He has focussed on the casual aspects of regression modelling with illustrations drawn from a Candian situation.

The second part is devoted to interdisciplinary methods in history, mathematics, geography, psychology, anthropology and sociology. Dennis J Willigan explains a number of multi-level conceptual and methodological strategies from a life history perspective, conceptualising the life course as a temporal sequence of interactions. A critical assessment of the major issues relating to human migration has been made by Nurun Nabi and Krishnan. They are of the opinion that a single theory of migration is neither possible nor feasible, as the process is multidimensional over space and time The interrelation between sociology and demography has been examined by K. Mahadevan, R. Jayasree and S. Sivaraju, Loszek A. Koninski and Feroz Kurji have defined population geography delineating reltionship between geography and population issues. Systems framework, currently the popular methodological technique, has been developed by three scholars from China—Jingyuan Yu, Chi-hsien Than and Guangtian Zhu. They examine population issues, target population and control measures in China. A review of mathematical modelling has been made by P. Krishnan. Epidemiologic methods have been discussed by Lory Laing. Anil Kumar Koshy, M.S.R. Murthy and N. Viswanathan Nair discuss the role of the anthropological framework in population studies.

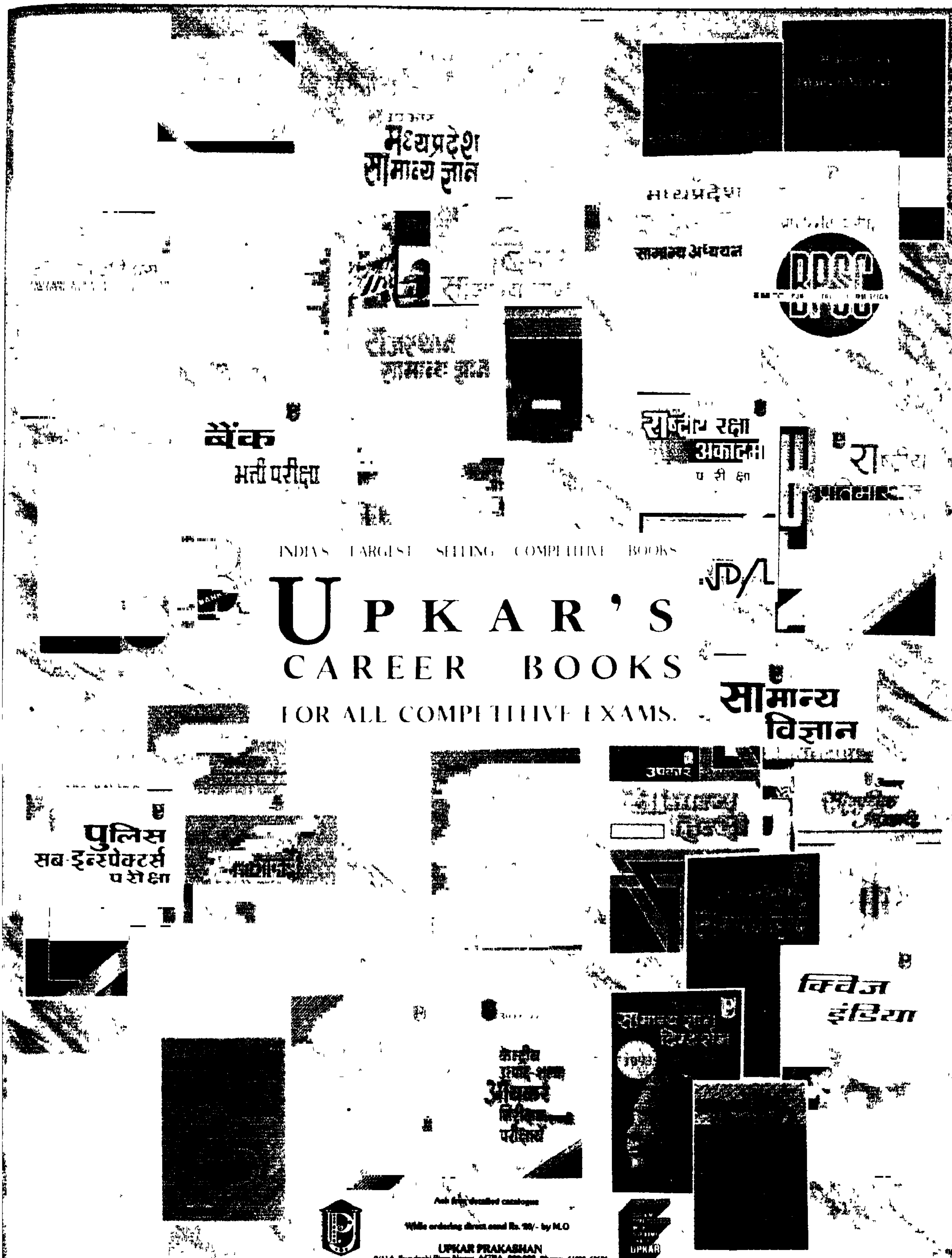
The third section of the book is on models for data analysis and development. Michael Todaro examines the problem from a wider perspective. K. Mahadevan, Baha Abu Laban, Sharon McIrvin Abu-Laban and M. Sumangala have proposed a very comprehensive approach to development in their paper on "Third World Development and Quality of Life". This model should pave way for future research, both theoretical and applied, in this area.

Fourth part of the book is concerned with the projection of households and families in Canada as well as strategies for dealing with uncertainties in estimating survivorship at the higher ages. Alfred DeMaris and K.V. Rao present an overview of loglinear modelling and illustrate it with actual data on first marriage dissolution in Canada. A computer programme for tracing the changes on the age-gender composition of population and any age structure dependent characteristic has been described by N.M. Lalu in his paper, "A Computer Programme for Macro-Simulation in Demography". A.V. George and K. Perreault discuss the methodology used for such a projection in Canada. In the estimates of survivorship probabilities, mathematical strategies to deal with such issues have been discussed by Charles J. Mode and Herman E Gollwitzer in their paper.

The fifth part contains two papers contributed by K. Mahadevan: one is on Successful, Diffusion through Satisfied Adopters, and the other is on Population Education through Integrated Development. Mahadevan, in his first paper, discusses family, and in the second he concentrates on population education.

It is a useful volume for applied research institutions, administrators, consultants, demographers, sociologists, planners and decision-makers. It can be used both as a textbook and a reference volume.

M.L. Ahuja



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Ocean Resource Planning

Pranav N. Desai

OCEANS around the country have proved to be rich deposits of food, fuel and minerals. But these are not unlimited and hence the need for ocean resources policy and management. The author feels, while exploration of hydrocarbons and minerals should be speeded up immediately, the study of ocean climate which has an important bearing on our agriculture and marine food, should be persued as a long term policy.

THE draft paper for a New Technology Policy introduced in April 1993 includes exploitation of Ocean resources as one of the thrust areas. The increasing realisation that ocean resources and ocean space are not boundless but finite and have competing uses or abuses, had brought into sharp focus the imperatives of ocean resources policy and management the world over. The increasing population pressures in absolute terms and concomitant demands have led to fast depletion of land resources. Some of the land based reserves are likely to be depleted in near future of 10-15 years period. This phenomenon has forced the planners and administrators to shift the attention towards generating an efficient ocean science and technology system to develop, utilise and protect ocean resources at accelerated pace.

In the last twenty five years, oceanographic research and development activities in India have made significant contribution which has a bearing on diverse sectors such as agriculture, defence, energy, environment, health, industry etc. These activities are being carried out by various governmental organisations, universities and other agencies including the National Institute of Oceanography (NIO).

The Indian peninsula bound by the Arabian sea on the west, the Bay of Bengal on the east and the Indian Ocean on the south along with the archipelagoes on either sides, form a total coastline of 7500 kms. The Exclusive Economic Zone (EEZ) formed along this coastline covers 2.01 milion sq. km. This zone which is one the largest in the world is as large as two third of the land mass of the country. In addition to this, the country was also allocated a mine site by the international Seabed Authority covering an area of 0.3 million sq. kms. to explore and develop resources of the deep seabed which include polymetallic nodules and other rich deposits of important minerals

In the last four decades of planned development Indian economy has witnesses a striking structural transformation, The share of agriculture to GDP which was around 50 per cent in the fifties dropped to 33 per cent in 1990-91. However, this has not led to a proportionate decline in the share of population still depending on agriculture which is as high as 70 per cent. This situation is compounded by the fact that despite planned efforts in the direction of irrigation, drought-proofing etc., about 70 per cent of the cultivated land is rainfed and hence simply depended on vagaries of monsoon. Thus the resultant fluctuation in agricultural production not only affect the domestic supply of food grain, protein-rich pulses and oilseeds but also affect our foreign exchange earnings. Agricultural (16 per cent) and marine products alone constituted about 20 per cent of export earnings (1991-92). This explains the emphasis in the Eighth Plan on agriculture and rural development which will account for almost 50 per cent of the outlay It seems from the preceding that monsoon system and its understanding and precise forecasting is the basic necessity of Indian agricultural activities. The response of the oceans to the atmospheric changes and vice versa are sensitive topics to be studied. As far as marine food is concerned, India needs to catch up with the growing demand estimated to be about 11.4 million tonnes by the

year 2000 A.D. This cannot be achieved unless new potential areas for production are identified.

The Eighth plan has set a target of 5.6 per cent growth rate in GDP as the previous two plans achieved similar targets. Moreover, any target lower than this figure would not receive enthusiastic public support. This task of achieving higher growth rate will require greater attention at this juncture. The Eighth Plan cannot but afford to aim an increase in the volume of net export in the context of the current forex shortage, changed international situation and a decine in exports from certain countries. At present the Indian foreign trade is characterised by intriguing features. In the year 1991-92, the non-oil trade revealed a trade balance of Rs. 1,600 crore. Against this figure the oil trade showed a negative balance of Rs. 11,200 crore, emerging as the major drain on foreign exchange. This gap could have widened but for off-shore oil production at Bombay High. This is evident from the fact that the country produced only 8 million tonnes of crude oil in the mid-Seventies and in ten year period this figure jumped to 31 million tonnes. However, at current consumption rate, the target was short by 2.5 million tonnes and the increasing demand will have to be met by imports. Thus ocean exploration holds great promise for future in identification of alternative sources.

Mineral Resources

Oceans are also rich source of important and strategic minerals. These minerals can not only substitute scarce land based resources but can also help generate considerable employment from ocean-based industries. The sea-floor of the continental margins of India is covered by a wide variety of biogenous, chemogenous and terrigenous mineral deposits.

Biogenous sediments are reported from shallow off-shore areas of Lakshadweep (712 million tonnes) and the Gulf of Kutch (2 million tonnes), the outershelf of Bombay and the backwater of kerala (3 million tones).

As far as calcerous sand or limestones are concerned, its demand by 2000 A.D. is likely to exceed 100 million tones due to its wider industrial use. The cement industry may require 79 million tonnes and the iron and steel industry 14 million tonnes. The total requirement of dolomite has been estimated at around 6.5 million tonnes. Thus the production of limestone and dolomite will have to be increased by 3.3 times to meet the rising demand from the present level and this cannot simply be met by land based resources.

Occurences of chemogenous deposits i.e., phosphorites are reported from the south/western continental shelf but these occurences at present do not appear to be of economic interest. However, due to increasing demand of agricultural activities, despite increasing production of rock phosphate the country's import of rock phosphate remains steady. Thus in future mining of such resources from ocean might become cost effective.

A major area of substantial economic interest in this catagory is polymetallic nodules. The polymetallic nodules in the deeper bed of the Indian ocean cover an area of 10-15 million sq. km. The deposits are categorized as paramarginal.

An average polymetallic nodule from the Indian ocean is composed of metals such as manganese (15.1 per cent), iron (14.74), nickel (0.464), copper (0.294), cobalt (0.230), and a combination of nickel and copper (0.758). Except copper most of these metals are used in steel alloys of special quality, coinage and other related industries. Out of these metals nickel and cobalt are being imported and at current rate of consumption the land-based resources of the country are likely to be exhausted in the range of twenty years.

Rich Potential

A resource evaluation conducted for the area (0.15 million sq. kms.) in the central Indian Ocean revealed that a combined metal to the tune of 10 million tonnes are expected from this area. This at the rate of Rs. 100/kg. The economic value of these resources could be estimated to be around Rs. 100,000 crore. The value is calculated at the minimum possible rate and for the area just half the total mine site.

Terrigenous heavy mineral placers containing ilmenite, magnetite, monazite, zircon and rutile are reported from many beaches of India. The deposits are expected to extend to the inner shelf, but very little work has been carried out to trace their offshore extension except along the Konkan coast, Maharashtra, where reserves are expected to be more than 12.5 million tonnes.

Some of these minerals are exported or used in the production of export commodities. Ilmenite is used in the production of titanium which is used for space craft and nuclear powered submarines. Rutile is an export commodity used in the production of synthetic rutile and is also used in ceramics industry. Oceans are expected to provide a rich source of such minerals.

In the light of the foregoing discussion, the future research priorities and technologies are required to be evolved in the following areas. The immediate or short-term target seems to be the exploration of hydrocarbons and minerals. The study of ocean climate and identification of potential productive areas of marine food seem to hold long-term interest in ocean S & T. ☐

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Linkages Between The Universities And Industry

R. Mehrotra

CROSS fertilisation between universities and industrial organisations is more than just desirable. Basic research without applied dimension is theory without measurement and applied research without basic research is measurement without a theory. A sound and judicious wedlock between the two is essential to guarantee beneficial fruits to the society, says the author

CONSISTENT with the overall spirit of the New Education Policy, the major tasks of the universities and other seats of higher learning in the years to come are to do everything to transfer vigour and action to academia, to remove roadblocks and obstacles to interaction, to let teachers, students and researchers have the freedom and responsibility to innovate in teaching and research, to bring about the much needed wedlock between these universities and seats of higher learning and the industry in order to create an exuberant society capable of facing the challenging problems of our times, be they academic, technical or societal. As Professor Yash Pal, the former Chairman of University Grants Commission, exhorted the Vice-Chancellors of Indian Universities in his demi-official letter on the Seventh Five Year Plan, "The universities must be brought centre-stage. Anything new which affects peoples' lives can never be imprisoned within one discipline. Disciplines exist as a concession to the limitations of human mind. While there is a growing need for specialisation in different disciplines, to absorb, assimilate and add to the growing body of discipline-based knowledge, simultaneously we must range across disciplines to be able to touch reality in the raw 'and to grapple with vexatious and burning problems of the day which in form and content transcend disciplines'. It is only across the boundaries of disciplines that cross fertilisation of ideas is most potent"

It is this perspective alone that should guide and strengthen the need and justification for establishing and strengthening the linkages between disciplines on the one hand and, simultaneously on the other, those between the universities and the industry most broadly construed This requires that there must first be a happy wedlock between pure science and applied research so that the marriage between the universities and industry is successfully consummated. Both aspects are "compossible" to use a word coined by Leibnitz

Pure science has enjoyed almost everywhere much greater prestige than applied research, and this is more accentuated in countries where science is comparatively a new thing Unless special care is taken, pure research will tend to dominate and even drive out applied work. It seems that left to itself, there is nearly always a tendency for research, even in project-oriented laboratories, to become 'purer and purer' unless there are strong countervailing forces These institutions should place special emphasis on applied and industrial research.

It is often held that universities should perform, almost exclusively pure (basic) research leaving applied research and development in all branches of science to other institutions This belief or ideology is based on an image of university role and of research which prevailed among a minority of university teachers in the scientific world some decades ago The universities in the industrialised countries make a substantial contribution to applied research and some of them, in varying degrees, even to development research Today, with the advance of science and technology the distinction between pure and applied research, between a research scientist and a research engineer, has become artificial, and in fields like Electronics it has almost disappeared The same individual may be working at one time in pure research and at another time on an applied problem The difference between pure research and applied work is one of motivation and goals, and not of techniques and creativity. In pure research one is

concerned primarily with gaining a new insight or in the discovery of new knowledge whereas in applied work the objective is to meet some urgent felt need in industrial or agricultural development or production. Therefore applied research of necessity carries a time schedule limit for its completion.

Applied work such as developing important new techniques or designing or fabricating special instruments or apparatus should receive proper recognition and it should be made possible for such work to earn Ph.D. awards. Whereas in the case of pure science a research contribution must bear international comparison to be of any value, the same is not equally valid in the field of applied science In the case of pure research the value of contribution in a particular field lies in the stimulus it provides to research in that field, but in the case of applied research the value of contribution lies in the stimulus it gives to the development of instrumentation, processes and techniques

Professor P M S Blackett, President of the Royal Society (UK) and a Professor of Physics at the Imperial College of Technology (UK) in his discussions with the Education Commission (the Kothari Commission to be precise) particularly stressed the importance of applied research for India This necessarily implies close and intimate cooperation between research in the universities and that in large industrial houses and concerns The problems of industrial research need to be jointly tackled on a cooperative basis by staff in the universities and engineering institutions as well as those working in the industries In the long run, the universities should develop some concrete kind of extension services analogous to what is obtainable in the agrcultural universities. There could and should be a movement of staff from university to industry and vice versa Consultancy and advisory positions and even directorships in industrial concerns can be offered to dynamic academic people so that effective and successful interaction and its much-needed by-product are well established. In West Germany industry has put up research institutions in collaboration with some of the university departments and they work together closely on many projects This is worthwhile implementing in India wherever conditions and facilities are favourable.

In the Commonwealth of Independent States-CIS (formely USSR) educational institutions work in close and active touch and collaboration with industry. A considerable amount of basic and applied research for industry is carried out in universities and other educational institutions and is paid for by industry In certain specialised fields high grade industrial engineers and scientists work on part-time basis as *Professors in educational institutions* Also, it is quite common for postgraduate students to do part of their research in industrial establishments using industrial plant and facilities

Prerequisities

In an article published in Komsomolskaja Pravada of 20th January 1966, Professor P L. Kapitza had stressed the following essential prerequisities for effective and long-lasting linkages between universities and industry. favourable material conditions for industry for learning and adopting new technology, adequate preliminary training in the industry concerns, and favourable moral and material conditions for the cooperation of scientists and university personnel with industry

A survey should be made in India showing, for any recent year, how the university research potential is distributed along basic, mission-oriented basic, applied, and development research. Towards this comprehensive survey, initial efforts may be directed towards analysing the surveys made in the universities in various branches of science and technology, economics and management, and by statistically collating, compiling and analysing the topics of various Ph.D. theses in the universities and other institutions of higher learning.

One of the principal aims of the universities should be to make higher education more relevant to national needs and to forge forward linkages of higher education with employment and economic development There is need for restructuring of courses to bring about the necessary concern for relevance and use, application orientation, flexibility and diversification. Towards this end extension activities should be developed as components within each subject or discipline to provide for the necessary linkage with industry as well as with financial and other infrastrctural institutions. The development of interaction between the university departments, industry, and apex financial and development bodies should be on an institutional basis to be long-lasting

Within the country there are enormous differences between infrastructual facilities and capabilities available in specialised scientific agencies, national laboratories, industrial undertakings, and in the universities These create in the initial stages disparities and become obstacles in forging linkages with the industry The state universities in particular have been allowed to run down to an unbelievable extent The situation needs to be remedied rapidly to bring about the desired linkages with industry The weak coupling between science/technology infrastructure and capabilities and the production system in the country has led to an insufficient use of the science generated and a lack of appreciation by decision makers in government and industry of the

capabilities in the universities. This can be remedied by completing the total innovation chain consisting of basic research, applied research, design and development, prototype fabrication, up-scaling, extension, awareness building, producton engineering, design and consultancy, and production and services.

Goal-Directed

Relating science and technology to the objectives of planned industrial growth calls for goal-directed science and technology (S&T) efforts Most natural linkages arise between two or more organisations when they are jointly engaged in accomplishing a task. This applies par excellently to industry and the universities Representation of senior academicians from the universities on the boards of industrial enterprises and vice versa, agreements between industry and universities for exchange of personnel, etc., are some of the measures which can bring about the required conditions for forging these linkages Industry must be made to spend an appropriate amount on research in universities from which they would directly benefit. Similarly, while setting up separate S & T and R & D units within and outside industry, it should be ensured that they have the desired formal linkages with the higher educational system in the country. Universities should be encouraged to take up applied research of value to the regions in which they are located functionally.

Cross fertilisation between universities, and industrial organisations is more than just desirable It is essential for excellence to flourish It is also necessary to develop industry-oriented centres of excellence, and it is all the more necessary to strive to maintain that level of excellence in those institutions because excellence is a vulnerable entity even after it is established or attained

Basic research is concerned with the discovery of new knowledge and with increasing our understanding of natural phenomena. It may not be directed towards solutions, but is at the frontiers of knowledge. Higher education is primarily the responsibility of the universities, and quite clearly there must be basic research in the universities in the overall interest of higher quality of education. Basic research is important not only for its own sake but also because of the solid and permanent foundation it provides for applied research and development (R&D). The dichotomy between basic and applied research is, in an important sense, intrinsically artificial. They are related to each other as Siamese twins. Know-why is as important as Know-how. Basic research without applied dimension is theory without measurement and applied research without basic research is measurement without a theory A sound and judicious wedlock between the two is essential to guarantee beneficial fruits to the society Hence, to ensure cross fertilisation they must go to bed together.

Any research, or education, for that matter, must be both light-giving and fruit-bearing. This perspective alone provides the rationale for forward and backward linkages between the universities and the industry. Basic research to the exclusion of researches in its applied dimensions is jejune and infertile. □

(Courtesy: University News)

Essay Competition

To commemorate the Centenary of Swami Vivekananda's Bharat Parikrama and his Address at the Parliament of Religions at Chicago, Yojana (English) is organising an essay competition open to its subscribers only. The theme of the essay is : Swamiji's Bharat Parikrama, the Chicago Address and the message of Unity and Amity. The essay should be of about 1500-1600 words.

On popular demand, it has been decided to throw the competition open to all students. However, they will have to affix a certificate of the Head of the Deptt./Institute to prove the bonafide of the competitor. They should write on the top of the envelop "Essay Competition". There will be three prizes viz., First Prize : Rs. 1000/-, Second Prize : Rs. 800/- and Third Prize : Rs. 600/-. There will also be two consolation prizes of Rs. 400/- each. The prize winning essays will be published in September 1993 issue.

The last date of receipt of the entries is 31.7.1993.

Teacher Education
Search For Alternatives

Dr. G.L. Arora

IN the present age of specialisation, the multipurpose B.Ed. courses have lost their relevance. There is now the need for devising alternative programmes keeping in view the requirements of teachers and teacher educators of different levels and subjects.

QUALITY of school education is a function of the quality of teacher education to some extent. But the system of teacher education in our country is characterised by inertia as it has been painfully slow in responding to the need and demands of school education.

The educational world has extensively debated during the past many years that teacher's education in India needs restructuring, strengthening and modernisation. A number of experiments have been tried, a host of schemes have been floated but dissatisfaction has persisted It is felt that instead of improving the quality of teacher's education, standard of colleges has deteriorated over the years. The establishment of four-year integrated courses leading to B.A/B.Ed. or B.Sc. B.Ed. degree was heralded as a great innovation in teacher education but the experiment has not crossed the boundaries of the four Regional Colleges of Education. The lone example of the four year integrated course outside the Regional Colleges is that of University College of Kurukshetra, which had to be discountinued after a few years in favour of the traditional one year B.Ed course in addition to the 4-year integrated course. The National Council for Teacher Education (NCTE) set up to lay down broad policies with regard to structure, admission requirements and curriculum has remained almost non-functional for the past many years. In order to mobilise resources for their development activities, many universities have started correspondence courses leading to the confering of B.Ed. and M.Ed. degrees. This reckless and misguided act on the part of some universities has taken the standard of teacher education to the rock bottom level.

To think of restructuring and strengthening of teacher education, it is imperative to have a critical look at the present system of teacher education for elementary and secondary stage of education. The existing teacher education system is based on the following assumptions·

1. Lower academic qualification is required to teach in lower classes.
2. Professional needs of teachers are the same or almost identical at the pre-school, elementary and secondary levels Hence, one general multipurpose course of B.Ed. type is alright for the preparation of teachers and teacher educators of different levels
3. Professional education should begin after the completion of general academic education Therefore a prospective teacher should first complete his general education in a school/college/university and then join a teacher education programme.
4. Teacher educators, educational administrators and researchers should possess some sort of higher qualifications in education Therefore, a multipurpose M.Ed programme was conceived for the preparation of teacher educators, planners, administrators and researchers.

The teacher's education programme has undergone a number of changes during the post Independence period. The entry qualification for

the elementary level has been raised from middle pass to senior secondary level in most of the States while in some of the States it is still matriculation .The duration of the course has also been raised from one year to two years. In view of the increased availability of trained teachers, the phenomenon of untrained teachers has become a thing of the past in majority of the States. The number of secondary teacher education colleges has increased substantially during the post Independence period.

Better Prospects

Teaching has not remained a last resort for those who could not manage admissions or jobs elsewhere. With the revision of pay scales of all categories of teachers, teaching has become an attractive profession, specially for women There was a time when 'first come, first served' was the basis of admission in teacher education colleges, many of which used set up camps in the other States or cities to attract students to their colleges. The situation has now changed as there is a great rush for admission to recognised colleges. In some parts of the country, the phenomenon of donation or capitation fee for buying admission has also become a reality. Keeping in view the great demand for teacher education courses, universities and State education departments have initiated measures including conduct of combined entrance test to regulate admissions.

The problem of unemployment among trained teachers is very serious in some States The problem is more serious in the case of trained graduate teachers than the elementary school teachers The problem does not assume alarming proportions as most of the women candidates are not very keen for full time employment as teachers. In many States, teachers possessing B.Ed. degree are eligible for employment as teachers in primary schools, although they are trained for teaching at secondary stage and not at primary stage.

The past few decades have witnessed little attempts at modernisation of the curriculum of various teacher education courses. The latest researches in various aspects of child's development are reflected in the courses on 'educational psychology'. The study relating to sociology and philosophy of education has been replaced by the study of 'education in India' at the B.Ed. level. The emerging specialisations and problem areas in education have been accommodated as 'optional' in B.Ed courses such as educational technology, non-formal education, adult education, guidance and counselling, population education, women education etc. But these changes are just cosmetic touches rather than full scale attempt at restructuring of teacher education courses.

In the B Ed courses, every teacher trainee is required to offer two teaching subjects i e. he is trained for teaching two subjects at the secondary level. In many cases it so happens that a trainee has studied only one school subject at the graduation level but has to offer another subject also as his second teaching subject which he might have studied upto matriculation level only. For example, a candidate graduating with English, Philosophy and Psychology/Sociology, if admitted, will offer English and Social Sciences/mother tongue as his teaching subjects A student teacher, who studied Chemistry, Botany and Zoology at the graduation level will offer English and Science as his teaching subjects. A trainee, graduating with two social sciences, if admitted, will offer 'Social Sciences' but in schools he will be called upon to teach all the four components of social sciences syllabus i.e. History, Civics, Geography and Economics upto secondary level. In addition, he will be called upon to offer one language also and the general feeling is that any graduate can teach a language irrespective of the fact whether he has studied it at the graduation level or not.

The undergraduate courses, which are general in nature, are not tuned to the needs of any specific profession. There are various openings for the students who acquire BA/B.Sc. degree. They can join postgraduate courses or prepare for competitive examinations, but the undergraduate courses hardly meet the demands of the teacher education programmes, specially for the subjects of Social Sciences and Science. Moreover, instead of keeping the teacher education system dependent on the university system, it would be better to make it self dependent. Besides pedagogical training, the system should provide such academic education to the trainees as will equip them to teach their subject with confidence.

The present model of teacher education envisages academic education of 3 years duration followed by one year professional education The alternative integrated model of teacher education envisages simultaneous professional education alongwith general education. In most of the countries the integrated model of teacher preparation is followed as students desirous of adopting teaching as a career join the teacher education courses after completing their school educaton. A bachelor degree in teacher education is considered as first degree in education like other bachelor degrees in Science or Commerce or Arts Therefore, bachelor programme should be specifically tailored to the needs of teaching profession. The content of this programme should comprise only those subjects/areas, the knowledge of which a trainee would require as a teacher. A prospective teacher of

Science should study the content as well as pedagogy of the four major branches of Science viz. Physics, Chemistry, Botany and Zoology.

The above discussion reveals that in the present age of specialisation the multipurpose and omnibus courses of present B.Ed. and M.Ed. type have lose their relevance. There is need for devising alternative programmes keeping in view the requirements of teachers and teacher educators of different levels and subjects. The system of teacher education may be restructured and reorganised along the lines suggest below:-

1. There is need for a statutory organisation at the national level to oversee the teacher education institutions. The organisation should be responsible for the formulation of broad policies regarding teacher education programmes, development of norms for the recognition or derecognition of teacher education institutions, development of model curricula and admission, procedures and development of suitable mechanism for the evaluation of teacher education institutions with a view to phasing out sub-standard institutions.
2. The multipurpose general type B.Ed. course should be replaced by specialised courses designed to meet the demands of different levels of education such as nursery education, elementary education and secondary education. A candidate offering B.Ed (secondary) will specialise in the teaching of one school subject. Besides some core courses in foundations of education, he will study the content of one subject upto graduation level. Thus there will be as many types of B.Ed. (secondary) as there are subjects. Likewise, a student of B.Ed (elementary) will also study one subject upto graduation level as he will be called upon to teach upto class VIII

4. There will be a need to institute post graduate courses in education for the preparation of teachers for senior secondary schools, teacher educators, researchers and administrators The course will be of two years duration and should be open to the students possessing bachelor degree in nursery or elementary or secondary education The course may be known as M Ed (elementary) or M Ed. (Nursery) or M Ed (secondary) in different subjects These courses will aim at preparing teacher educators or administrators at different levels Another purpose of these courses will be to train researchers in these areas. The courses for senior secondary teachers may be labelled as M A/M.Sc in the education of different subjects such as history, political science, geography, physics etc. The content of these courses will include some core areas in foundations of education, content of the concerned subject of post graduation level and its pedagogy. Initialy, during the transition period, candidates possessing general B.A/B.Sc. degrees may also be allowed to join M.A/M.Sc. (education) courses.

In view of the integration of content with pedagogy, it would be difficult to run integrated courses in the existing colleges of education in the absence of adequate infrastructure and staff possessing competence and expertise to teach different subjects at the graduation or post graduation level The problem can be easily solved if some of the existing science and arts colleges are converted into colleges of education The staff working in the existing training colleges can be shifted to the colleges running integrated courses. The universities can run M.A/M.Sc courses in the education of different disciplines in addition to the usual post graduate courses The newly established District Institutes of Education and Training (DIETs) can be further equipped to run B.Ed. (elementary) and B Ed (nursery) courses ☐

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Flood Insurance—Concept And Operational Problems

B.N. Navalawala

CLIMATOLOGICALLY and geographically, it is peculiar that out of total geographical area of the country (329 million ha.) the estimated area prone to floods is nearly one-eighth (40 million ha) and drought prone area is about one-third (108 million ha) Every year millions of people in some region or the other are affected either by droughts or floods The Rashtriya Barh Ayog (1980) has on the whole identified the northern sub-basins of the Ganga basin and Brahmaputra basin as the most flood prone areas Based on the available flood affected area of the States and adopting the criterion of adding maximum area affected in each State in any one year during the period of 1953-78, the RBA has estimated the area vulnerable to floods as about 40 million hectares (m ha.), including the area which has been protected from floods. The RBA had identified, based on the analysis of flood damage data of years 1971-78 that the States of Uttar Pradesh, Bihar, West Bengal, Orissa and Assam are more prone to floods as well as mentioning that Gujarat, Andhra Pradesh, Tamil Nadu and Rajasthan also suffered in recent years. Flood damage data of years 1953-90 indicate that on an average and annually, area affected is 7.94 million ha., total population affected is 32.86 million, the croped area affected is 3.66 million ha., human lives lost 1,532 nos. and total damage is Rs. 937 crore. In the 1977 flood alone as many as 11,316 human lives were lost. The maximum value of total damage i.e. houses, crops and public utilities that accrued in a single year was of Rs. 4,630 crore in the year 1988 It is estimated that the total damage that this country has suffered due to floods during the period from 1953-90 is of the order of about Rs. 3,52,627 crore

Due to topographical and economic factors, protection cannot be provided to all areas prone to flooding as well as same degree of protection need not be provided to all areas susceptible Protection is provided on the basis of frequency of flooding and based on this, areas would be categorised as protectable under flood frequency of 25, 50, 100 years or a higher order depending upon the site conditions including features of assests to be protected. Considering these factors, it has been assessed that the protectable area is 32 m ha against which a reasonable protection has been provided to about 13.5 m ha. as a result of total investment of about Rs. 2,500 crore by the end of Seventh Five Year Plan (1985-90) It is estimated that as a result of construction of 15,600 kms. of new embankments and 33,100 kms. of drainage channels, afforestation and raising of villages above flood level, 400 towns and 4,700 villages have been benefitted by the end of Seventh Plan An outlay of Rs. 1623.37 crore including Rs. 282 crore under Central Sector has been approved for flood control sector programmes during Eighth Plan which works out to 5% of total outlay for irrigation sector as a whole.

Basically, there are two types of measures namely structural and non-structural for mitigation of flood damage. Major thrust, so far, in flood management in India has mostly been in the form of structural measures, mainly construction of embankments. The experience has shown that this approach has created its own problems, besides time and cost over runs, large investments needed and post-construction maintenance problems involved. Although structural measures are desirable for densely populated areas, it has to be realised that the same give protection to lives and properties only for certain level of protection and do not provide complete protection from floods. Further they increase the potential for major flood disaster once the assumed level of protection is exceeded. Also, investments on structural measures encourage people to move into known hazard areas, fully expecting and often receiving Government help. These ground realities must be recognised by policy makers, planners, engineers and

others, involved in flood management activities. Against this, due to cost effectiveness and speedier implementation of the non-structural measures, the main thrust is now on the non-structural management measures.

The non-structural measures can be broadly grouped under two categories as follows:

(a) Modifying the susceptibility to flood damage
— Flood Plain Management
— Flood Proofing including Disaster Preparendness and Response Planning
— Flood Forecasting and Warning

(b) Modifying the Loss Burden
— Disaster Relief
— Flood Fighting including Public Health Measures
— Flood Insurance

Effective Adjustment

Flood modification, acting alone, leaves a residual flood loss potential. It can also encourage a false sense of security lending to inapporpriate use of lands in the areas that are directly protected and often in adjacent areas as well. For this reason, measures to modify possible flood should usually be accompanied by measures to modify the susceptibility to flood damage by land use regulations and by flood plain management, development and re-development policies, structural changes, flood proofing, disaster preparendness and response plans and flood forescasting and warnings. This strategy is expressed as actions to avoid dangerous uneconomic, undesirable or unwise use of flood plains. Experience in other countries has shown that such adjustments are very effective and that they cost less than conventional measures, besides tending to pass the burden of costs from the public at large to those who reap the advantages of flood plain location with the result that it also promotes increased awareness of the need for efficient flood adjustments.

This approach to flood management is to modify the incidence of the loss burden. This is actually a strategy for mitigating the losses by means of actions designed to assist the individual and the community in the preparatory, survival and recovery phase of floods. This category comprises: (i) Emergency measures, consisting mainly of evacuation, flood fighting and public health measures and (ii) Redistribution of losses which is for spreading the burden over a large segment of the community than that immediately affected or by spreading it more evenly over time. The common methods are disaster relief, tax remission and flood insurance.

Flood Insurance

Although, the flood insurance has so far not been widely adopted in India, it has several advantages as a means of modifying the loss burden. It enables an individual property owner to spread an uncertain, but potentially large loss, uniformly over a long period of time. It is somewhat similar to automobile insurance in the sense that the average annual premia are paid to avoid an uncertain but possibly catastrophic loss. However, it must be borne in mind that flood insurance does not reduce flood loss potential since it simply provides a mechanism for spreading it over time, area and a large number of individuals It has advantages for both the public and the Government. It places part of the burden on those who enjoy the benefit of flood location as well as losses that are associated with the latter than making it the responsibility of the public at large and thereby of Government. The advantages of this measure are that only those activities that can afford to pay the requisite premia can continue occupation. Further insurance requirements in mortgage agreements can become a factor in stimulating the adoption of flood proofing measures.

Though flood risk has been included in "cover" issued by the General Insurance Companies in India it is more popular in urban areas and big towns where damage due to inundation caused mostly by excessive rainfall is taken care of. In Hungary, a scheme has been in operation since 1968 covering losses in the agriculture sector. A scheme has been instituted in the USA with the Federal Government providing a subsidy to the insurance industry, insisting that its applicability be contingent upon the adoption of land use regulation and other measures to reduce flood damage potential.

The Insurance industry has been generally unwilling to enter this field, mainly due to uncertainties over the reasonably priced assessment of damage potential in an operational area and thereby difficulties in fixing charge rates on some rational consideration If uniform rates were charged, a company would find itself burdened with an adverse selection of risks because people only in the highly flood prone areas are the ones most likely to take a policy. On the other hand, if an attempt were made to charge rates proportionate to the risk, the premium would be much higher than the property owners would be willing to pay The insurance cover works successfully for a class of people who are subjected to such risks more or less equally. In case of floods, the risk of loss even in areas liable to flood is not equal For example, those owning land or property at lower elevation in a flood plain are subject to higher risk both in magnitude as well as frequency. Therefore, those living at high levels would need to be equally willing to obtain insurance cover at the same rate.

It is quite a difficult task to accurately adjust insurance premium. Recently a study has been taken up for demarcating different flood risk zones in the country for arriving at a

ıitable criterion for insurance premium. It may, however, be noted ıat all these efforts are in respect of roperties only and not crops which e more liable to flood damage due inundation. The insurance industry ıs also pointed out that even though is possible to estimate flood equencies, it is possible that a given surance company might have to ıy out claims for several years in ıccession and this might result in e company going bankrupt. The ıly way of surmounting this problem ould be for several companies to in hands in providing flood insurance or for the Government to ıderwrite the claims.

xperience

In this connection, it will be teresting to cite the experience of omprehensive Crop Insurance heme (CCIS) implemented during e Seventh Plan (1985-90) period, ıntly by the Ministry of Agriculture d 19 States and 4 Union Territories one or more seasons. This scheme veıed loanee farmers only as well selected crops namely, paddy, ıeat, millets, pulses, and oil seeds. ıe premium was at the rate of 2% r paddy, wheat, millets and at 1% r oil seed and pulses and 50% emium subsidy was for small and ırginal farmers. The limit of sum der this scheme was fixed at . 10,000 per farmer. Since the implementation of the scheme, the income ım premium has been of the order Rs. 120 crore only as against the al payable claims of the order of . 943 crore. Thus, the premiums ratio has been roughly 1.8. Now, ing various constraints, mainly ıited coverage for both the farmers d crops and low premium, the nistry of Agriculture has formed a ot Scheme, charging actuarial es of premia, covering all farmers d all crops against all risks, luding due to hail storm and hout premium subsidy element. der this new scheme, the limit of n is increased to Rs. 45,000 per farmer. The scheme is presently under discussion between the Union Government and States.

Another problem being faced by the insurance companies is the assembling of basic data for working out a fair and equitable premium for all areas according to flood risks. The present methods of assessing flood damages also need improvement. The RBA recommended that the State Governments should carry out realistic evaluation of the flood damage, river-basinwise, under three separately indentified categories, namely, (i) unprotected areas, (ii) protected areas due to failure of protective works and (iii) areas between the embankment and the river There are at present different departments in the State and different Ministries in the Centre entrusted with the collection of flood damage data. This creates some confusion as well as hinders timely collection of flood damage data. The improvement of the present techniques of field collection, assessment, recording and reporting of flood damage statistics is very much essential. Further, the present arrangements for collation of such data and keeping them in a retrievable form for users need to be improved. Computerisation is helpful, even necessary, but the more important problem is to induce the universities/research institutes who devote so much time and resources and take such pains in collecting data to match it with systematic analysis of the data. There is also need for a thorough recasting both at the conceptual and operational level, of statistics on floods and flood damages. Each system needs to be encouraged and helped to compile the detailed data relevart for flood management Remoe sensing technique would proveto be a very useful tool in this regarl.

For successful operation of flood insuance scheme, it will need an effective machinery for supervision and monitoring which is today almost absent. Therefore, a wide network under such machinery will have to be set up, may be by integrating with existing flood forecasting network.

Flood Plain Zoning aims at disseminating, such "potential loss" information on a wider basis so as to regulate indiscriminate and own planned development in flood pains and is relevant both for unprotective as well as protected areas. Flood plain zoning recognises the basic fact that the flood plains are essentially the domain of the river and as such all developmental activities in flood plains must be compatible with the flood risk involved. Heavy encroachment on flood plains has been responsible for increasing trend of damage over the years, notwithstanding the large invenstments being made year after year. The RBA also recommended that flood plain managent measures should be undertaken and a suitable legislation enacted wherever necessary. Subsequently, the National Conference of the States' Irrigation and Water Resources Ministers have endorsed this view while recommending the enactment of necessary legislation by each State expeditiously alongwith other related measures. It has also been recommended that pending enactment of legislation, development activity in the flood plains should be regulated by administrative measures.

Central Water Commission (CWC) had prepared a model draft which was circulated in 1975 by the then Ministry of Irrigation, to all the States advising them for enactment of a suitable legislation. The response from the State Governments has so far been not encouraging. Except Manipur, no other State in the country has enacted a legislation so far, though it is stated to be under

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Lab To Farm

Training And Visit Programme: A Case Study

Dr. Hemchand Jain

THE project was started in September, 1977 in the first phase covering 5 districts of Madhya Pradesh. In the second phase the remaining districts were covered. The project was launched mainly to develop better contacts of agricultural scientists with extension field workers and farmers to provide them with latest technology for agricultural development in Madhya Pradesh.

The project has three components, viz, extension, research and project monitoring and evaluation. The reorganisation of the extension system was done by the state government to ensure better implimentation. The monitoring and evaluation component was entrusted to the State Department of Agriculture. The applied research part of the project and organisation of training programme to the field level extension workers was the responsibility of the agricultural Universities.

The farm universities of the state organised the training programmes and to equip extension workers with latest crops and allied technology.

Prior to the implementation of training and visit programme, the extension service was found to be involved in fulfilling the targets, and has forgotten to bring about changes in behavioural pattern of farmers. Hence a wide gap in generation of technology and its utilisation by the clients was found The T and V-a better aproach to agricultural extension provides a systematic and regular upto date advice on farm practices to the farmers under location specific conditions having immediate impact on their production and consequently income.

Thrust Areas

The increase in production in the past has come largely from the irrigated crops while yields from rainfed areas have remained low and stagnant. Of course, the new technology is neutral to scale but in actual practice the benefits have been availed largely by the farmers having better resource endowment. The marginal/small farmers could not reap the fruits of new farm technology due to lack of availability of adequate resources. To reduce these imbalances and to increase the participation of farmers with poor resources endowment, a need was felt to raise the yield levels of crops through improved agricultural practices. The strategy implied in the T and V is to increase agricultural production through the reduction in gap between present practices of the majority of the farmers and the existing technology used by the progressive farmers. Thus the thrust area to improve the productivity levels of crops was to transfer the know how of already proven but simple technology to the farming community. This could be achieved through improvements in agricultural research programme under T and V system.

Objectives

(1) A coordinated approach for increasing agricultural production particularly food grain through best possible use of extension, research, training and monitoring and evaluation under the project.

(2) Re-organisation and strengthening of extension system to ensure regular contact with the farmers to identify and solve location specific problems on their farms.

(3) Motivating the farmers to adopt the new technology quickly so that the gap between research and extension is reduced.

(4) To arrange and organise training programmes to equip the

extension workers of the state Department of Agriculture with the new developments of farm technology research and practical knowledge of different crops production technology.

The project had a very modest target of attaining a minimum increase in yield of 25 kg/ha. in case of food crops in 7 years after launching of the programme.

Keeping in view the genesis of T and V programme, the present study was undertaken to evaluate the programme in Jabalpur district of Madhya Pradesh. The objectives of the present study were to examine the organization and operation of T and V programme, the rationale of adoptive research, lesson plan and feedback received from extension workers/farmers, assess the impact of the programme, scrutinize the targets and achievements and finally to suggest ways and means to improve its functioning.

To evaluate the programme in the selected district, Patan sub-division and Nunsar, R A.E O Circle was purposively selected The selection of contact farmers numbering 34 was done on the basis of stratified proportionate random sampling and the non-contact farmers numbering 34 were selected by simple random sampling. The results of this study were based on the 68 sample respondents.

Findings

(1) The selection of the farmers belonging to different castes and categories was in line with the directives of the programme.

(2) In selection of the farmers, educational level was kept in view and hence about 80 per cent of the contact farmers under the programme were educated.

(3) The contact farmers were better placed in terms of possession of land holdings and irrigation facilities in the study area.

(4) The sample farmers reported the production technology, plant protection and input related problems as the first, second and last preference problems respectively. But the contact farmers suggested a large number showing their deeper understanding and ability to identify problems because of the linkage with the extension agency. The contact farmers were found more conscious of plant protection measures as against the non-contact farmers

(5) Out of the problems suggested by the respondents, 54 per cent were solved by the field extension worker, showing the extent of effectiveness of extension service The number of reported problem and their solutions were found positively associated with the size of holdings

(6) More attention was paid to visiting fields belong to large farmers. Extension agency was found to be biased towards contact farmers. The visis of R.A.E.Os. were more at the residence of respondents rather than on fields as envisaged in the programme.

(7) The R A.E.Os were found to be over burdened with routine work which hampered their visits and allocation to time for field work.

(8) The extension agency was partially equipped for solving location specific problems and also lacked initiative due to excessive administrative assignment.

(9) Sixty per cent of the identified problems were attributed to personal contacts only. Remaining problems were from other sources.

(10) The coordination between extension workers and research scientists was by and large found to be satisfactory.

(11) Monthly training programmes were reported to be effective and of practical use by forty per cent only. Necessary feedback is essential to improve upon the contents of training programmes The scheduled training programmes have become rituals and stereotyped for want of proper feedback and flexibility in the programme. The trainings were less oriented towards practicals and remained merely classroom lecture. The improvement in the training programme depends upon timely feedbacks and interest of the trainees.

(12) The number of adoptive trials conducted on farmers' fields were one-third of the total planned. The large size farms had availed of the advantages of these trials. The maximum number of adoptive trials were related with the input use in farming whereas production technology and plant protection were next in order of importance

The purpose of these adoptive trials was to attain higher levels of production, adopting of improved cultivaton of crops as a business activity and improving technical knowledge of farmers

The adoptive trials were conducted to the extent of 58 per cent in case of non contact farmers to solve their location specific problems. There was less involvement of field extension workers in conducting trials of testing of the technology on farmers' fields.

The results also reveal that there was poor or no co-relation between lesson plans and adoptive trials. The lesson plans were mostly on production technology whereas the adoptive trials were mostly on input use.

(13) The data in respect of coverage of area under recommended improved farm technology by the sample farmers revealed that

the contact farmers got more advantages as compared to those non-contact farmers in adoption of new farm technology in terms of improved seed, fertilizer use, seed treatment and plant protection measures.

The reasons reported for non-doption of recommended facilities 'ere untimely availability of inputs nd unfavourable conditions As ;gards knowledge and efficacy of nproved farm technology, the conict farmers had the better knowledge s compared to efficacy in using nproved farm practices

(4) There was a definite increase in the yield levels of wheat and gram showing the positive impact of T and V programme

(5) In this study about 76 per cent sample farmers reported the usefulness of T and V system The maximum proportion of large farmers responded favourably in this respect as against other categories of farmers. The agricultural extension services were reported significantly useful for sample farmers in comparison to non-contact farmers

The farmer-respondent opined for making improvements in the programme:

(a) Extension workers should have rural back-ground and they should be well-versed with the service area.

(b) The extension workers should devote more time to field visits and personal contacts with the families

(c) The problem identification and the feed-back to the scientists for obtaining solution should be well documented so as to help in the entire machinary for agricultural development

(d) Informal meetings and group discussions should be the essential components of T and V programme

(e) There should be flexibility in the training programmes and correspondence with the lesson plans, radio talks and adoptive trials

(f) Voluntary organisations for farm advisory services should be organised for popularising the programmes among the farmers and having target participations in the T and V programme

Recommendations

1. In view of the difference between contact and non-contact farmers, the selection criteria needs to be changed in favour of those who have resource constraint and fall below the proverty line.
2. Problem identification, feed-back and planning of adoptive trials need greater emphasis in the T and V programme.
3. The training programmes should be flexible and oriented to feel needs of the farmers to minimise technological gaps
4. Extension workers should allocate more time on field visits and contact of the farmers.
5. Targets need to be revised in the light of the productivity of the resources specific to the farming situations.
6. T and V programme should be integrated with IRDP
7. The T and V programme should be concentrated in an area instead of following scattered approach resulting in dilution of efforts and low performance

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:tive consideration in a few other tates. Assam has stated that enactient of flood plain zoning legislation not envisaged at this stage ladhya Pradesh is considering hysical demarcation of 36 towns 'facted by floods at least 3 times in ie last 30 years. The matter 'garding legislation for flood plain)ning is before the State Flood ontrol Board for consideration ttar Pradesh feels that flood plain)ning legislation is not considered :cessary at this stage West Bengal in correspondence with its Law 'epartment regarding the draft bill on flood plain zoning Orissa has reported that the formulation of Flood Plain Zoning Bill was under consideration of the State Government Tamil Nadu has intimated that it agrees in principle to enact a suitable legislation for flood plain zoning. Delhi Administration has informed that the enactment of Flood Plain Zoning Act is not required as the objective is proposed to be achieved through the existing provision of Delhi Development Act 1957. However, CWC has informed the Ministry of Water Resources that the Delhi Development Act does not cover the flood aspects and is mainly meant for urbanisation etc Gujarat has not considered it necessary to enact such a legislation in view of the situation prevailing in the State. Also, the Government of India took lead in getting flood plain zoning maps prepared through satellite imageries at a cost of about Rs. 6 crore and has made the same available to the States. ☐

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Export Potential Of Minerals: A Perspective

B.D. Jethra, P.N. Shali and S.B.S. Chauhan

FOR working out an effective strategy for increasing exports of minerals, some of the important factors that would need to be considered include environmental factor, competition from competitive materials, price, etc

The export marketing strategy for minerals and ores would have to take into account the new developments in environmental laws-which are becoming stringent in the Western world Last two decades have witnessed increasing global concern for protection of environment and ecological balance Sustainable development is the theme of global concern reflected in the Brundtland Commission, 1987, the World Conservation Strategy, 1982 etc

It is evident, therefore, that the environment has become the single most important issue which mining sector and mineral exports will have to reckon with Its impact will be that stricter environmental requirements in the developed countries of the western world will force companies to move away or close down; while in the third world countries, it will take some more time before such stringent environmental laws are brought into force Consequently, minerals, produced in the third world countries are likely to become competitive, given the fact that stricter environmental requirements will be the significant area of cost increase for new capacities in the western world. Besides, decreasing area of land available for exploration, improved air quality standards and the need for reclamation commitments in these countries will add significantly to the costs of mineral production.

The third world countries are likely to gain some time because of these developments There may be a possibility of multi-national mineral producing companies moving away from the western world into the third world countries for exploitation of minerals and ores there This is likely to result in a new trend either of sole multi-national operating in the exploitation of minerals or joint sector ventures coming up in the third world countries In both the cases, third world countries will stand to gain particularly with regard to investments and marketing infrastructure from the multi-nationals

It is also likely that in the investment sensitive area of mineral exploration, multi-national inputs will help in speeding up mineral exploration activities in the third world countries-which is likely to lead to overall increase in mineral production as well as in the international trade of minerals particulary from the third world

Competitive Materials: The mineral markets in the 1990s will be influenced by possible substitutes—which might compete with specific commodities This will require a detailed investigation based on the present trend in this direction For example, in the USA, the materials market share for metallic minerals has decreased and that for organic-based materials has increased significantly in the last few decades Plastics are now the main competitors with metals. International material markets are by and large depicting the same pattern as those seen in the United States

The price will be the other important factor on which will depend export potential of minerals from India Presently, we are not price competitive internationally, by and large It is likely that we may become competitive in the near future now that the forward-looking policy changes have been brought about-which is going to give impetus to the development of a competitive Indian economy But these policy changes will yield results when there is sincere and willing response of the industry to adjust to the new changed conditions Besides, minerials are low value bulk materals, requiring special attention in regard to their handling, movement and frieght charges In the export of any mineral, railway freight and port charges together consume around 70% of their f o.b realisation.

The movement of high value bulk minerals will be advantageous rather than low value bulk minerals Even semi-processed commodities could be advantageous from the point of view of high export earnings.

A Perspective

There would be a medium-term and long-term perspectives for mineral exports from India. The medium-

term perspective will be based on the existing reserve position (proven) and the long term on the likely reserve position of the minerals-when possible and probable resources are brought into proven category through investments in exploration The thrust in the VIII Plan will be on the later aspect of mineral development in India

With the advancement of processing technologies including that of beneficiation, presently minerals of inferior grades can become a potential reserves for commercial exploitation in the distant future. We have large resources of such minerals. Therefore, at present a long term scenario can only be guessed.

For medium term perspective, broad indications are that in the next 10 years or so, we might be in a position to improve the status of mineral exports

Minerals in which we are, reserve-wise, well placed today and have potential for exports are Barytes, Bauxite, Bentonite, granite, Chrome Ore, Dolomite, Fire Clay, Fuller's Earth, Gypsum, Iron Ore, Ilemenite, Kyanite, Limestone, Magnesite, Manganese Ore, Rutile, Silica minerals, Talc/Steatite, Pyrophyllite, etc By and large these are the minerals which are being exported except limestone. Mostly, these minerals are commercially exploited in the private sector. Barytes occupies the first position in the list of exports of these minerals India is one of the largest producers of barytes in the world.

Iron Ore is the major mineral and contributed Rs. 8834.6 million in foreign exchange earnings in 1989-90. This was followed by calcined alumina at Rs. 3925.9 million, chrome ore Rs. 665 million, manganese ore Rs 379.9 million, ilemenite ore Rs. 215.9 million, salt Rs. 154.1 million in export earnings in 1989-90. These minerals could be placed in 'A' category in their foreign exchange earning potential.

Barytes, Granite, Marble, Alabastar and other stones and products contributed Rs. 1682.8 million in our foreign exchange earnings in 1989-90. Out of this, granite and products thereof contributed about Rs. 1470 million followed by Barytes Rs. 162.8 million, marble and other stones Rs 50 million in our foreign exchange earnings in 1989-90. These minerals could be placed in 'B' category list

Minerals like Bentonite, Calcined Magnesite, Felspar, Fuller's Earth, Kaolin, Sillimenite, Dolomite-all processed minerals-contributed Rs 134 9 million in our foreign exchange earnings in 1989-90 These minerals are in the 'C' category list

From the above A,B,C analysis, one could say that our strength in earning foreign exchange lies in bulk foreign exchange earning minerals-placed in 'A' & 'B' catagory In case we intend to aim at higher growth in foreign exchange earnings from mineral exports, our efforts must concentrate first on these two categories of minerals and then on the third

In the perspective next 10 years, a variety of factors will come into play which will determine the growth in mineral exports from India The most important will be how we are placed vis-a-vis other competitors in these minerals in price, quality and in maintaining continuous supply The other important factor would be the investments required to increase mining capacities both in mines and in the infrastructure—roads, railways and port facilities Besides, technology in the use of these minerals for manufacturing industrial products will also be one of the important factors to be considered

Private Exploitation

While it will be difficult to increase significantly investment in the public sector, it might be possible to increase investments in the private sector for mineral exploitation during the next decade. From this viewpoint, export oriented alumina plants and more iron ore producing capacity in the private sector will be desirable. The other minerals in the above stated list will be exploited by and large by the private sector and there should be no difficulty in increasing mine capacities provided we are sure to penetrate fairly widely in the international market for these minerals.

It will be also pertinent to assess the better option for increasing our foreign exchange from the export of minerals. For example, a pertinent question would be whether it should be gainful to export raw ores or semi-processed or processed minerals In case of iron ore, export of sponge iron or pellets will be the other options available. Similarly, in case of bauxite, calcined alumina will be a value added option Exporting bauxite may not be a profitable proposition Aluminium exports in the immediate future will not be possible since we will be re-entering a deficit phase in this metal by around 1996-97

In some cases, however, India might gain in exporting ores rather then ores/minerals in the semi-processed or processed forms A case in point is the export of manganese ore at the present juncture. While the prices of manganese ore have firmed up considerably in the last two years after a gap of three years, the prices of ferro-manganese have not proportionately increased

Coming to specific minerals, while exporting bauxite will not be profitable since global bauxite trade had come down by 9% due to high energy cost of transportation of bauxite to alumina refineries from mine heads in the recent past, alumina is a value added internationally traded commodity. It has attained the status of a free market

commodity due to significant structural changes in the global alumina market. There is much scope for India to increase its present share at around 0.5 million tonnes out of the total international trade of 9 million tonnes Aluminium production facilities are progressively shifting to energy-rich regions of the world and alumina prices as a consequence are tending to be attractive. The setting up of export oriented calcined alumina capacity will be profitable investment for India in 1990s India will have to make a considerable amount of marketing efforts to take best advantage of the opportunities going to be available in international alumina market

After a long period of decline and stagnation, the world iron ore market is expected to attain a level of buoyancy in 1990s India ranks fourth with its contribution to the world iron ore trade at around 8% The largest importer being Japan with 60% share of our total exports It is expected that the present level of export at 34 million tonnes is likely to be maintained by 1994-95 keeping in view the constraints of large investment required for increasing the capacities in mines, railways, ports, etc as well as considering the significant increase in the domestic consumption

Other Minerals

The other minerals which have contributed a large sum of money in our foreign exchange kitty are chrome, manganese and ilemenite ores We have sizeable deposits of high and low grade friable chrome ore which can be easily upgraded by beneficiation The reserves of lumpy ore grade-I are limited A substantial potential for increasing exports of chrome ore can arise with mining at deeper levels from 60-200 metres in Sukinda Valley in Orissa, for which we need a new State-of-Art technology particularly to tackle 'Fragile Ore Bodies' Due to low reserve position, we may not be in a position to increase export of manganese ore significantly in the immediate future. Impurities such as vanadium, chromium, etc., put the Indian ilemenite in a slightly disadvantageous position vis-a-vis other world suppliers. It would be, therefore, necessary to develop beneficiation technology to improve the grade of ilemenite ore for increasing its export

Coming to 'B' category minerals in this list barytes, marble and other dimensional stones are the major minerals Given their reserve position, there is significant potential for earning foreign exchange through higher exports of these minerals in the next decade

Presently, India is one of the major exporter of barytes to U.S.A, Middle East and Iran East Europe and Japan can be potential target markets for achieving a higher growth in export of this mineral From the present almost a stagnating condition, demand for barytes is likely to increase due to recent spurt in oil prices consequence of which will be that the oil drilling activity is likely to increase India is in a position to corner a bigger share of the total international trade of barytes, being one of the largest producers in the world

In 1989-90, Rs 152 crore worth marble, granite and other dimensional stones were exported Indian share in the world market of these minerals can be increased by setting up more 100% export oriented units in the private sector Since, by and large, these minerals are found on the surface as out-crops and can be easily mined, the major investment is required in setting up cutting and polishing units.

In 'C' category minerals, bentonite stands at the top of the list, followed by Felspar, Calcined Magnesite, Kaolin, Sillimenite, Iron Oxide and so on While India has large reserves of these minerals, these are low value items. Our share in the world trade of Bentonite is only 5% and almost negligible in other minerals Due to likely spurt in oil drilling activity the world over, demand for Bentonite is likely to increase. The new markets for Bentonite will be East and West Asia and neighbouring countries Manufactured sheet Mica, Slate, Felspar, etc. are some of the other mineral of high export potential.

Supportive Measures

In order to achieve the objective of increasing our exports of minerals, infrastructural inputs for marketing both for dissemination of information on international markets of minerals and for actual market promotion will be necessary An Export Promotion Council exclusively for minerals will be desirable

The Government has already initiated measures to liberalise various policies pertaining to mineral development for making these in line with the liberalised economic environment that has now been created for faster economic development of the country A new mineral policy has been announced and the existing Acts and Rules pertaining to mineral development are being amended These changes will encourage the role of private entrepreneurs in mining and export of minerals-who are likely to contribute in a great measure in achieving higher growth in the export of minerals in the years to come. Besides, some concessions such as extension of benefits availabl under Section 80 HHC of the Income Tax Act to the exporters of minerals and ores and liberalisation in the grant of mining rights, etc., also need conservation

Any policy and strategy that might become necessary to increase exports of minerals must, however, take into account the mineral inventory position both in the immediate and on the long-term basis.

Conclusion

India continues to be a net importer of minerals and metals. Broadly, India's contribution in the total international trade of minerals is not significant and there is potential to increase this share substantially.

The minerals that can contribute in a great measure in achieving this objective are iron ore, bauxite refined as calcined alumina, marble, granite and other dimensional stones, barytes, bentonite, fuller's earth, etc.

Reserve-wise India is well placed in the minerals and in the long run the reserve base is likely to increase with intensive exploration drive that will be taken up in the Eighth and subsequent Plans.

While there may not be much contribution of the public sector in further increasing mining capacities for bettering our share in the international trade of minerals, a significant contribution is likely to come from the private sector in this regard. Specific investments both in increasing mining capacities and infrastructural facilities including railways and ports will have to be worked out. It will also be pertinent to study the alternative options of exporting minerals in raw form or semi-processed or processed forms, depending upon the international prices.

The international markets for minerals will also be influenced by changes in technology, and through substitution effect of materials etc. This will have to be taken into account while working out the detailed export strategy for the next decade.

In order to help private sector to increase its role in mining and export of minerals in the next decade, institutional and policy support like exclusive Export Promotion Council for minerals is needed, extention of income-tax benefit under Section 80 HHC, liberalisation in the grant of mining rights, etc, will also deserve consideration. □

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Women In Development: A Case Study

Pritha Sarkar

DEVELOPMENT of Women and Children in Rural Areas (DWCRA), a sub-programme of the Integrated Rural Development Programme (IRDP) is specially designed to improve the quality of life of women and children in rural areas. Altough there is a specific target for coverage of women beneficiaries under IRDP, experience shows that the flow of assistance to women in rural areas has been marginal The male members of the family usually take the decisions on the mode or utlisation of the fund provided for the womenfolk There are innumerable cases where a woman member in the family is totally ignorant of the fact that a loan has been granted in her favour Hence, it was felt that there was need for a sharper focus on the status of rural women and for adopting a different strategy for offering the services of IRDP to women To fulfil this need, DWCRA was launched in 1982-83 with special asistance of the UNICEF

Objectives Of DWCRA

The basic objectives of DWCRA are

(i) To organise women's groups (of 10 to 15 members) in rural areas for dealing with problems-social, econimic and political faced by them

(ii) To make rural women critically aware of the society in which they live

(iii) To increase the earning capacity of the poor rural women by developing their abilities and skills

(iv) To provide opportunities to the women for self-employment on a sustained basis.

(v) To help rural women learn and take advantage of the various social development resources and services available in the area and to participate in planning and implementation of different programmes in the area.

As a woman's earning in a family is likely to be spent largely on the welfare of the children, it is expected that the children's development will automatically follow the mother's development

DWCRA was launched in West Bengal in 1983-84 in the districts of Bankura and Purulia At present, there are twelve districts where this scheme is in operation Till the 31st March, 1993, 2535 groups had been formed covering about 45,000 women beneficiaries in the State

DWCRA was introduced in the district of North 24-Parganas in 1989-90 Of the 22 blocks of the district, 20 have so far been brought under its purview. The areas covered range from semi urban tracts on the town fringe to extremely backward and remote riverine islands of the Sunderbans. In the first year, 100 groups were covering about 1750 women beneficiaries At present there are as many as 293 groups with about 5000 women benefitting from the scheme. Out of these, 50 groups have been formed under a Pilot Project for Bank financing of Informal Groups. Besides, more than 1800 beneficiaries have received training under TRYSEM. About 1200 women have been provided with different types of loans under IRDP, the economic activities varying from traditional scheme like dairy, poultry and weaving to newer projects like making of gauge-bandage and embroidering intricate designs with Kantha Stich.

There has been a perceptible improvement in the economic status of the families to which the DWCRA beneficiaries belong. What is even more significant and what holds bigger promise is the fact that these beneficiary groups have become forums of articulation of the problems faced by the poor rural women in the area Recognising this new dispensation the North 24-Parganas District Rural Development Agency (DRDA) organised a series of seminars and workshops at the district and block levels involving Panchayat members, bank officials, representatives of women's organisations and DWCRA groups members in order to creat and sustain general awareness about this scheme There was wide and spontaneous participation including that of local M L A s, the Zilla Parishad Chairman and the Collector Successful group leaders narrated their stories of success and pooled their experience in these meets

Convergence

Improving the quality of life of the poor rural woman does not mean making her an economically self-reliant individual only, but also involves the enhancement of her social awareness. A successful DWCRA group is one which has generated self-confidence among its members and has inculcated in them a positive self-image. All round development of the women in a DWCRA group is possible only

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Renewing Commitment To Better Environment

I.J. Bahl

EARTH is the only planet, so far known, to have an environment that can sustain life. Environment consists of land, water, air and plants etc. Another external component of environment is the perennial energy that it receives from the Sun.

The adequate natural resources, if wisely managed can fulfil the basic needs of every one now as well as of posterity. However, the need of the poor, the greed of the rich and the inappropriateness of the technologies employed in various sectors have resulted in a rapid erosion of our resource base, depletion of our forests, decimation of wild species, pollution of air and water which threaten future development.

No doubt, environmental degradation directly stems from uncontrolled deforestation the emission of pollutants, excessive use of toxic products and the exploitation of non-renewable natural resources which can be described as acts of aggression against nature. Man's dependence on the environment is greater than that of other organisms and the conservation has, therefore, become very important today to maintain the essential ecological processes and life supporting systems, to preserve the diversity of species and the genetic resources

The World Environment Day is indeed an appropriate occasion to remind ourselves that we all belong to one human family and must work together for our common good—be at the regional, national or global level. We have a responsibility to future generation as well as to our own to preserve the unique eco-systems of this ancient land and to play our part in contributing to the maintenance of the earth's bio-diversity.

There has since been growing awareness of global environment concerns such as Ozone depletion, the green-house effect and climate change, trans-boundary movement of hazaradous substances and wastes, the threats to the biological diversity etc There has also been growing acceptance about the linkages between environment and development

India has played a great role in harmonising the conflicting views on global environmental issues The United Nations conference on Environment and Development was held in June last year in Brazil in which over 100 Heads of State and government participated The stand of the developing countries was articulated and the Rio Resolution was adopted. While the treaties on climate change and bio-diversity were agreed upon and signed, poverty alleviation was made the basic item in the Agenda-21 Indian representatives have also participated in several other international conferences such as in Beijing, Geneva and Kenya to discuss and develop a common approach among the developing countries towards issues like Montreal Protocol, Green-House effect, Biological diversities and Funding Mechanism

Unique Initiative

India and Britain have proposed a joint initiative on Environment matters and have prepared position papers on crucial environment issues. It is hoped that this unique initiative between a developing and a developed country will be fore-runner and provide the basis for a common platform to be adopted by other like minded countries

For us environmental conservation is not a new concept. The Indian tradition of love, respect and reverance of nature goes back to the time immemorial. Historically the protection of nature and wild life formed an ardent article of faith reflected in the daily lives of the people and also enshrined in myths, folk lore, religion, art and culture Twenty two centuries ago, Emperor Ashoka made it a King's duty to protect wild life and forestries. He got edicts inscribed on rocks and iron pillars all over his Kingdom prohibiting the destruction of forests and killing of the various species of animals This historical evidence surviving till today is the first recorded measure on conservation anywhere in the world.

But today, India is no exception to the global phenomenon of environmental degradation Development programmes based on utilisation of natural resources of the country with the aid of Science and Technology have been carried out in the post-Independent era. It was in the early seventies that alongwith the rest of the countries of the world, India realised another disquieting trend. The same efforts which helped to

bring people above the poverty line also put greater pressure on the natural resources of the country. The irrigation facilities provided the much needed water to the parched fields, but sometimes, produced salinity in the land The industrial technology based on the old models of the developed countries, provided products but also polluted water and air. The roads provided beter communication facilities but this was at the cost of forests which were cut to meet the demands of the people. The medical facilities improved the health of the people but increased population dramatically raising the demand for the products of nature.

The Ministry of Environment and Forest with separate departments for Environment, Forests and Wildlife was formed in 1985. The main objective and activities of the Ministry include the conservation of forests and wildlife, prevention and control of pollution, afforestation and regeneration of degraded areas, protection of environment and research related to these topics. The Environment Protection Act, enacted in 1986 envisaged co-ordination of activities of various regulatory agencies. The Ministry serves as a nodel agency in the country for the United Nations environment Programme, South Asia Cooperative Environment Programme, International Centre for Integrated Mountain Development and International Union for Conservation of Nature and Natural resources. A large number of development projects are being carried out in collaboration with the International agencies.

After completion of the Ganga Action Plan aimed at reducing pollution the Government has now launched the Yamuna Action Plan in the Capital. The launching of the Plan coinciding with the World Environment Day is reminder of a challange to development caused by deforestation and unplanned discharge of residues and wastes into the rivers.

(Courtesy: AIR)

(Contd. from page 24)

when the group has access to the various economic and social resources and services available in the area. Keeping this end in view, the district authorities of North 24-Parganas are formulating a specific plan for Convergence in the DWCRA the efforts of various departments like Health and Family Welfare, Mass Education, Social Welfare and Public Health along with DRDA and the UNICEF. This plan for concerted action aims at interweaving within the DWCRA group various personal and social issues like literacy, safe motherhood, immunisation, safe-drinking water, improved sanitation, correct dietary habits, clean environment etc. Special plans to ensure access to primary education for the children of the DWCRA beneficiaries and to reduce school drop-out rates are being made. Linkages are being established with on-going programmes like ICDS (Integrated Child Development Scheme), MCH (Maternity & Child Health), UIP (Universal Immunisation Programme), UPE (Universalisaition of Primary Education), TLC (Total Literary Campaign) etc. Special Monitoring Cards, in the likeness of Vikas Patrikas for IRDP beneficiaries, have been introduced for monitoring the progress of DWCRA groups. After the Panchayat elections of May 1993 about 1765 elected women members will be integrated into the Panchayati Raj hierarchy of the district. If they share the responsibility of implementing the programme at the grass root level DWCRA may as well become a model scheme of women's active participation in the planning process. The fact that a significant number of DWCRA group leaders and beneficiaries are contesting the elections is in itself an indication of the emerging scenario and a measure of the success of the programme that DWCRA stands for.

A New Strategy

The district authorities have designed a new strategy for effective implementation and monitoring of DWCRA It is the startegy of GROUP ADOPTION. Bankers and non-Government organisations are requested to adopt a DWCRA group within their service area and to nurse the group till it stands on its own feet. The activities of a successful group are bound to have a multiplier effect in the village where the group is located and on society at large.

Statistics on the status of women in India clearly reveal what has been aptly termed Feminisation of Poverty-a phenomenon which emphasises the selective deprivaion, exploitaition and social oppression faced by poor rural women. They are the poorest in the family of the poor. It is being increasingly felt that this vast number of human resource which has remained largely untapped has tremendous potential for the growth of the country.

DWCRA holds promise for a brighter future as it draws its sustenance from the faith that all round development of the women in the family holds the key to the uplift of the status of the family and of the society. If properly implemented, it may serve as one of the most effective instruments in our plan strategy. ☐

The author is Asst. Project Officer, (Women's Development) West Bengal.

Raising Of Vegetation Belt Along The Cyclone Prone Coast

H.K.N. Trivedi

THE United Nations General Assembly through its Resolution 44/236 adopted on 22nd December, 1989 declared 1990s as International Decade for Natural Disaster Reduction. It called upon nations throughout the world to give special attention to programmes and projects designed to reduce loss of life, property damage, and economic and social disruption caused by natural disasters In India, efforts are underway to take various short and long terms measures to observe the Decade in letter and spirit India, because of its geographical location and extent, is affected by almost all types of natural disasters Keeping in view the annual loss, these are the tropical cyclones which have been causing maximum damage in terms of loss of life, property, and economic and social disruption practically every year. The damaging factors associated with a cyclone are strong winds, heavy rainfall and the storm surge which is abnormal rise in the sea level above usual astronomical tide due to cyclone One of the most devastating cyclone was the one that crossed coast of Andhra Pradesh at Chirala on 19th November, 1977 For 2 days rainfall varying from 20-45 cms per day continued in Prakasham, Guntur, Krishna, East and West Godavari and adjoining Vishakhapatnam and Khammam districts. This area was also lashed by wind with speed of about 200 kmph. The most devastating was the storm surge of about 5 metres above sea level which extended upto 12 kms inland between 5 p.m.to 11 p.m. of the fateful day The losses associated with this cyclone included more than 8000 human lives, above 6 lakh cattle heads and other livestock, and damages to public utilities of about Rs. 170 crore. About 71 lakh people and a croped area of about 36 lakh acres was directly affected.

Efforts have always been made to minimise the damages by taking various measures It was the above mentioned cyclone which led to the constitution of the Cyclone Review Committee (CRC) by the Government of India in March, 1979. The Committee took stock of situation not only within the country but also the arrangements in other cyclone affected countries and submitted the report in May, 1984 to the Department of Science and Technology. Altogether, the report contains 317 recommendations Of these, 107 recommendations, pertain to Cyclone Monitoring/Cyclone Warning System, 124 to National Cyclone Code and the Cyclone Emergency Action Plan, 77 to Community Preparedness Plan against Cyclone and 8 for Research and Training

The CRC recommended creation of a Coastal Development Authority, in each cyclone prome State, which will be responsible for execution/coordination of all developmental activities in the coastal belt including establishment of forest belts in the coastal strips for protection against cyclones and prevention of soil erosion caused by these.

If a thick forest belt comprising trees which are not easily blown off by strong wind and which may be in a position to sustain the salinity affect caused by the winds blowing from sea or due to inundation, is grown, it may help in cyclone disaster reduction in the following ways.

i) This will form a wind-break. Thus, the stronger winds, particularly at the surface level will not be able to damage structures, crop etc

ii) The storm surge which is the most severe killer will find it difficult to cross the belt with its fury and height The sand carried by storm surge will get deposited on the trees, thus ultimately forming some sort of natural dyke which will strengthen the protective effect in future.

iii) Most of the sand carried by storm surge will be stopped by the forest belt thereby the valuable agricultural land may be saved from becoming a waste due to sand deposition. It will also help in avoiding the burying of the standing crop under the sand. At present, once storm surge has inundated an area, it may not be possible to grow subsequent one or two crops due to salinity and sand cover. If the benefits accruing out of even a single crop be taken into account, the total cost of the establishment of the forest belt will not be more than the damages due to one or two Cyclones.

In order to make the vegetation belt an economically viable programme, it is proposed that this be planted in three rows.

i) Front belt facing the sea with a thickness of about 100 to 300 metres consisting the trees which are potentially wind resistant like the casuriana equisetifolia, prosopis juliflora, anacardium occidentale etc

ii) Behind this belt, and also covering this belt a thick bio-mass vegetation be grown up which may be used as raw-material for bio-energy This vegetation will cover the stem portion of the front belt, practically making that an opaque belt and thus increasing the strength of the front belt to reduce storm fury

iii) The rear belt should consist of the plants/trees which have economic potential in terms of fruit, resign etc This belt will provide a source of employment and income for local population

A detailed plan may be worked out, after study of the cyclone prone coastal areas with reference to soil, salinity, topographical features etc

If the initial cost of growing these belt be brone by the government and leased to the local people who maintain the belt and reap the benefits from the bio-energy and fruit/resin belts etc, it will provide the local population with a permanent source of employment, income and thereby helping in alleviation of poverty in those areas.

After development of the vegetation belt the developmental projects in the cyclones prone areas may be undertaken at far lower risks

Efforts And Problems

As part of efforts for implementation of the CRC recommendations, the Department of Science & Technology convened a meeting in August, 1986 for preparation of action plan for cyclone shelter belt. In that meeting, the Secretaries of the Department of Science and Technology, Environment, Non-Conventional Energy were present in addition to the senior level representatives of the other concerned Central Government Departments, and State Governments of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Maharashtra and Gujarat Position in different States at that time was·

West Bengal: The Government was seized with the problem of growing shelter belts and the activities in this regard have been going on since early 50's However, the major constraints have been high salinity of soil and high rate of wave erosion The need for conducting research to overcome these impediments was stressed About 2,000 hectares were covered with shelter belts with notable help received from Swedish International Development Authority in this regard Another facet of this programme was with regard to the protection of some recently emerged off-shore islands from sea erosion The Government was planning to grow protective tree belts around these islands These shelter belts would be combined with fuel wood reserves to stabilise the land-form of these islands

Orissa: The shelter belt plantation, as an anti-cyclone measure, was an on-going programme of the State but it could not be implemented fully due to private land holdings After the Government decision that the benefit of the tree plantation in private land would go fully to the land owners, better implementation of the programme was expected

Andhra Pradesh: Of the total coastal line, some portion is reserved for forests on Government land and some portion is not suitable for plantation. The Shore Area Development Authority set up by the State was taking up the work of shelter belt plantation with resources from the Department of Forests, Fishery and Energy.

Tamil Nadu: About 5000 hectares was covered before 1979. The Coastal Afforestation Division was charged with this assignment.

Maharashtra: Most of the land along coast is private and there was practically no shelter belt at that time Need for shelter belt plantation in 3 coastal districts was felt

Gujarat: Under the Coastal afforestation programme, a portion of the coastal line was covered till then. However, serious difficulty was faced in the work due to non-availability of land with Government, unsuitability of land for growing vegetation due to high salt content and inundation of the land by tidal water In this regard, it was mentioned that efforts were being made to overcome some of the difficulties and intensify afforestation and raise shelter belts under a World Bank aided project which started in 1977-78 The need for conducting research on the selection of right type of species which can be grown in soils of high salt content was stressed

As may be seen from the preceding paragraphs, there are a number of problems to be tackled on administrative, scientific and technological levels Some of these are.

i) As entire land along the coastal area does not belong to the Government, the programme cannot be implemented. The Government may acquire the coastal land for the purpose

ii) Salinity and land erosion are two other serious problems which have to be dealt with on scientific and technological basis

In view of the aforesaid, the implementation of the above plantation programme may be taken up as part of the International Disaster Reduction Decade □

The author is Principal Scientific Officer, Deptt of S&T, New Delhi.

Book Review

PRINCIPLES AND PRACTICES OF VALUE ADDED TAX: by Mahesh C. Purohit, Gayatri Publications, Delhi, 1993, Price: Rs.250.

The Value Added Tax has emerged as one of the most important fiscal innovations of the century. In 80's alone about 30 countries of the world adopted this tax bringing the total number of countries adopting VAT to more than 60. The rationale for adoption of VAT lies in the fact that it is considered a relatively superior form of tax It aviods cascading, has a simple structure, does not distort the allocation of resources, and it is netural among labour intensive and capital intensive techniques

India also introduced a modified form of VAT (MODVAT) with effect from March 1, 1986. Initially the MODVAT was introduced to a select number of commodities. However, the coverage was extended with effect from March 1, 1987 to all commodities except petroleum products, textiles, tobaco, cinematographic films and matches. Today, half of the revenue of Union excise duties is being collected through MODVAT The existing MODVAT is only a step towards adopting a full-fledged VAT

There is a lot of misunderstanding and ignorance in this country about the true nature and implications of a Value Aded Tax. It is in this context that the utility of the present book has to be seen. The book provides a comprehensive coverage of various aspects-econimic as well as administrative-relative to the introduction of VAT.

The economic effects of VAT like the price effects, distributional effects, neutrality and efficiency and effects on growth has been analysed in chapter II. The analysis of economic aspects presented here indicates that it is due to the superiority of VAT in respect of these economic effects that it has come to occupy a place of pride in the fiscal structure of most countries in the world The properties of VAT are also in conformity with optimal tax theory

The book also tries to outline the characteristics of VAT as it is practised in various countries of the world Chapter VI is exclusively devoted to a portrayal of the management of VAT in France VAT was first introduced in France in 1954, though its origin can be traced as far back as the writings of F Von Siemens, who proposed it in 1918 as a substitute for the then newly established German turnover tax However, for its rejuvenation, the tax owes much to Maurice Faure and Carel Shoup

The book includes in analysis of the indirect tax system in India and provides guidelines as to how it can be imporved by the introduction of VAT

The book is a timely addition to the literature on Public Finance in India It could serve as an indispensible text book for post graduate students of Public Finance in this country besides being of immense value to tax administrators A low priced paper back edition would be of help to the student community

P V Rajeev

THE WORLD ECONOMY I[N] THE 20TH CENTURY by Ang[us] Maddison, Oxford & IBH, Ne[w] Delhi, pp. 147, Price: Rs. 250

This is an Indian edition of t[he] research study brought out by t[he] Organisation of Economic Coope[r]ation and Development (OECD) i[n] 1989 The author, Angus Maddiso[n] had been head of the Economi[c] Division in OEEC responsible f[or] analysing developments in memb[er] countries in the 1950s. He was director in the development depar[t]ment of OECD and one of the fir[st] fellow of its Development Centur[e] He had also been a policy advisor t[o] government in Brazil, Greece, Ghan[a] and Pakistan Since 1978, he h[as] been Professor of Economics at th[e] University of Groningen in th[e] Netherlands, working on problem[s] of growth and development.

In this study, the author provid[es] a succienct view of the twentiet[h] century experience of 32 countries i[n] Latin America, Asia, the OECD area and the erstwhile USSR cour[n]tries, which form a fifth of the 16[...] nations in the UN and in 198[...] represented 85 per cent of the worl[d] GDP, 76 per cent of the worl[d] population and 79 per cent of th[e] world exports

Illustrated with six graphs an[d] fifty tables, this book studies com[]parative economic history usin[g] quantitative growth accounts t[o] marshal much of the evidence an[d] examines interrelations betwee[n] different parts of the world econom[y] Sources and measurement procedur[es] are described in the four appendic[es] to enable the reader to judge th[e] quality of the evidence Appendix 'A' deals with the Estimates of GD[P] Level, 'B' with Estimates of GD[P] Growth, 'C' with Population, Em[]ployment and Education and 'D' with Exports and Related items.

The entire study is divided int[o] eight chapters: Economic Growth i[n]

the 20th Century; International Economy in the 20th Century; Phase of Development; Performance and Policy in a Liberal World Order 1990-13; Wars, Depression and Autorky 1913-50; the Postwar Golden Age 1900-70; the Slowdown in the World Economy since 1973. Eighth Chapter is a summary of earlier account.

In short, it is a useful and informative study for research students, teachers and economists

M.L. Ahuja

LEGAL ENVIRONMENT OF BUSINESS: By K. Aswathappa; Published by Mrs. Meena Panday for Himalya Publishing House, Bombay; pp. 380; Price Rs. 190

This book, primarily written for students of Madras University, can be a good reference Work for M.Phil. (Commerce) students of Bombay University for their subject 'Business Environment'

It contains extensive illustrations of business successes and failures, a good, concise commentary on different industrial policies, sufficient coverage of industrial licensing, Industrial Development (& Regulation) Act, 1951, Monopolies and Restrictive Trade Practices Act, 1969, Stock Exchange, FERA, NRI Investment, Patents Act, Industrial Sickness including Sick Industrial Companies Act (SICA) and Board for Industrial and Financial Reconstruction (BIFR), Social Audit, in a lucid style.

It's no crime to remain undiversified and yet we find companies like DCM, Brooke Bond, ITC, Larsen & Toubro, Britannia rushing head-long into diversifying their business activities, thanks to the liberalised policy of the Government. It is this 'not' sticking to the knitting' characteristic of Indian business enterprises which distinguishes them from excellently run American compalnies which find a mention in Thomas Peter and Robert Waterman's 'In search of Excellence' which is a much talked-about book in academic circles.

Business is an activity revolving round people-Business is People-a point the book makes by quoting a Chinese saying: "If you want to plan for a year, plant corn; if you want to plan for 30 years, plant a tree; but if you want to plan for 100 years, plant men". This point alas is not taken seriously by many Indian companies where development and satisfaction of employees is not given any priority. Exhorting business community to have a good corporate citizenship as one of its goals (besides profit, growth, power, market leadership) like the Tatas, even if it means sacrificing 100% growth, the author defines good corporate citizenship as complying with rules of the land, paying taxes to government regularly, caring for employees and custmers...

In the chapter on Industrial Licensing, he has, by way of illustrations, brought home the point how the licence-permit-raj has not been able to achieve its objectives of directing investments in industries according to plan priorities, regulating location of industries to secure balanced regional development, preventing monopoly and thereby concentration of wealth in a few hands... In fact, production of Crompton Greaves, Hindustan Lever, J.L. Morrison (to name only a few) was more than their licensed capacity and yet there has been no sign of any company being prosecuted, thereby making a mockery of the plethora of rules and regulations we have. Very effectively, the author has made a point that it is the business people who enjoy a considerable clout in our country.

On page 110, the book highlights the irony of the sheltered market in which big business in fact thrived and continuted to concentrate economic and political power, rather than help develop backward areas. The author's suggestion in making the jungle of legislations slim and trim needs some consideration. For example FERA Provisions could be a part of the RBI Act. He also questions the usefulness of the MRTP Act. Agreeing with S.S Khera, he quotes from his book 'Government in Business': "Company form of public enterprise was fraud on the constitution. Nevertheless, it seems to be the accepted pattern, and is the pattern which is likely to prevail unless something unexpected happens" (emphasis mine).

Though the book was brought out in 1992, we find statistics on page 83 of assests of top 20 companies as at the end of 1984, and on page 162 numner of foreign collaboration agreements approved by government from 1957 to 1987 only and on page 163, the footnote to the table on foreign private investments in India says: "The details upto 1980 represent the cumulative total as furnished in the Census of foreign investments by RBI. No later figures are available..."

I found the chapter on 'Business and Scoiety' quite interesting, full of facts and figures. I am sure students will immensely enjoy reading this book. All in all, the author's labour in writing the book is appreciated.□

Prof. (Dr.) Ruki Mirchandani



अब आप
अर्थपूर्ण, उज्ज्वल एवं निश्चित
स्वर्णिम भविष्य का निर्माण कर सकते हैं
प्रतियोगिता दर्पण
हिन्दी मासिक
शिक्षित युवा वर्ग के स्वर्णिम भविष्य के लिये
भारत में प्रतियोगिता परीक्षाओं हेतु हिन्दी की प्रथम
एवं सर्वाधिक बिकने वाली पत्रिका

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New Agriculture Policy

Dr. Bal Ram Jakhar

Despite the fact that farming is the natural occupation of our countrymen, it is tragic to note that investment in agriculture is decelerating. This must be stopped, says the author, who happens to be the main architect of the draft APR. Agriculture has to be a profitable and worthwhile occupation and not just a subsistence activity, he feels.

THE increase in production of foodgrains and other agricultural products in the last 40 years, though very substantial, has brought in its wake uneven development across regions and crops Capital formation in agriculture had witnessed decelerating trends in the eighties, creating serious doubts in our capacity to sustain the agricultural growth The country was faced with the task of not only sustaining and accelerating the pace of agricultural growth but also broad-basing it, as it has a direct bearing on improving the economy There were also equally urgent challenges to make agriculture export-oriented, create new job opportunities in the rural areas and improve farmers' status and economy

The Thrust

The Eighth Five Year Plan has addressed itself to meet these challenges. Agriculture being the most vital sector of the economy, the strategy for agricultural development in the Eighth Plan aims at not only achieving self-sufficiency in food but also generating surpluses of specific agricultural commodities for export to increase the income level of the farmers. The thrust of the agricultural programmes during the Eighth Plan is on—

(i) Diversification of agriculture and development of horticulture, livestock, fisheries, etc.,

(ii) Accelerated growth in the North-Eastern region through improvement in the productivity levels,

(iii) Development of rainfed areas,

(iv) Increasing production of oilseeds and pulses,

(v) Revitalisation of cooperatives, agricultural credit structure and improving marketing of agricultural produce, and

(vi) Development of post-harvest technology

The Targets

India will have an estimated 941 million people by the year 1997 With this population and given improvement in consumption level associated with growth in incomes, the estimated foodgrains requirements for 1997 will be around 208 million tonnes. We are planning to achieve a production level of 210 million tonnes of foodgrains in the terminal year of the Eighth Plan. The production of other crops like cotton, sugarcane, oilseeds, etc. will also be raised substantially. The production of milk and milk products at the end of the Eighth Plan is targetted to reach 70 million tonnes from the present level of 53.7 million tonnes during 1990-91. The supply of eggs is expected to grow at 6 per cent per annum A quantum jump in fish production will be achieved through creation of appropriate infrastructure Fish production in the country is expected to increase to 5 5 million tonnes by 1997, compared to 3 8 million tonnes in 1990-91

The Plan has augured well. In the first year of the Eighth Plan, foodgrains production is estimated to be over 180 million tonnes, which is 3 6 million tonnes more than the previous best of 176 4 million tonnes in 1990-91 Oilseeds production in the same year is expected to reach an all time high of 21 2 million tonnes Cotton production is anticipated at a record level of 12 million bales New initiatives have also been taken to promote development of horticulture, particularly in the North-Eastern region These measures are expected to have a favourable impact on the growth of agriculture during the Plan period

The major challenges in the agriculture sector, however, relate to creating a favourable economic environment for farmers' own efforts and investments to step up agricultural growth. This approach has been delineated in the draft Agriculture Policy Resolution (APR) which was discussed in a meeting of Chief Ministers on 5th March, 1993 They have broadly endorsed the thrusts and policy initiatives of the draft Resolution

Capital Formation

Farming is the natural occupation of the people in this country It is, therefore, tragic that over the years,

investment in agriculture has tended to decelerate. The total gross capital formation in agriculture declined from 18.6 per cent of the total gross capital formation in 1978-79 to 9.5 per cent in 1990-91. The decline in investment was even sharper in the case of public sector. From 15.3 per cent in 1980-81, the share of capital formation in agriculture in public sector declined to barely 5.6 per cent in 1990-91. Obviously, the investible resources have been diverted from agriculture to other sectors. This has to be stopped. This is the Central theme of the Policy. The draft APR clearly stipulates that the resource allocation regime in agriculture sector will be reviewed with a view to rechannelising available resources from current support measures towards capital formation and infrastructure building.

Agriculture being the most vital sector of the economy, the strategy for agricultural development in the Eighth Plan aims at not only achieving self-sufficiency in food but also generating surpluses of specific agricultural commodities for export to increase the income level of the farmers.

The Draft Agriculture Policy

The Agriculture Policy will seek to create a favourable economic environment for the growth of agriculture and to induce the farmers to intensify their efforts and investments in agriculture through a favourable price and trade regime. Agriculture has to be a profitable and worthwhile occupation and not just a subsistence activity The agriculture sector has to be commercially and economically viable. Today we have to think new objectives for agriculture and the draft Resolution prepared by the Government is a bold initiative in this regard. The thrust is on freeing the farm sector from the artificial support systems to make agriculture profitable so that both the nation and the farmers benefit by pursuing farming as a means of livelihood

The draft Resolution has focussed attention on raising the economic viability of agriculture Like the industrial sector, it has to have the needed flexibility to enable farmers to switch over to other allied activities with greater returns. For promoting the growth of agriculture in a long term perspective, it is essential that this sector should generate incomes comparable to other sectors so that the farmers continue to retain interest in farming The objective of government policy will be to develop effective systems and bestow similar benefits on agriculture as exists in industry, without subjecting the agriculturists to the regulatory and tax collection machinery of the Government This will provide an inducement to the farmers to put in greater efforts and raise their income level The aim is to enable the farm sector register higher growth in income levels vis-a-vis other sectors

Free Movement Of Foodgrains

The movement of foodgrains had been restricted till recently to regulate the prices of various agricultural commodities As against this the industrial goods have free movement anywhere within the country and the manufacturers could fix their own price according to the market situation. This is evidently an unfair and discriminatory treatment towards the farmers as against the manufacturers of industrial goods. This has to be set right. It has been decided to remove inter-state restrictions to enable farmers to freely move their produce to any market in the country. This will be to the advantage of both the farm producers and the consumers.

Remunerative Prices

The Government will continue to discharge its responsibility for ensuring remunerative agricultural prices to the farming community. To achieve this objective, the Government would continuously review the prices structure and trade mechanism to ensure a favourable income environment. In fact, the minimum support prices for Kharif and Rabi crops for 1992-93 have been fixed at substantially higher levels. The hike in per quintal minimum support price of Paddy is Rs. 40, Millets Rs. 35, Pulses Rs. 95, Groundnut in shell Rs. 105, Sunflower seeds Rs. 130 and Raw Cotton Rs. 110. Similarly, in Rabi crops, the per quintal hike in the minimum support prices of wheat is Rs. 55, Gram Rs 100, Rapeseed and Mustard Rs. 90, and Safflower Rs. 80. This unprecedented increase in support prices, though based on economic considerations, is aimed at improving the economic viability of agriculture sector.

The major challenges in the agriculture sector relate to creating a favourable economic environment for farmers' own efforts and investments to step up agricultural growth. This approach has been delineated in the draft Agriculture Policy Resolution.

Agricultural Export

India has a natural comparable advantage in agricultural exports because of our lower import needs of inputs, reasonable labour costs and diverse agro-climatic conditions This potential needs to be exploited to spur the Indian economy to a higher rate of growth To achieve this objective, a long term policy of expansion and diversification of agricultural produce will be formulated consistent with the overall objective to give a fair share to the farmers. The Government has recently undertaken a series of measures to promote India's exports to other countries. A large number of officers in respective State Governments as

well as Central Quarantine Services have been authorised for issue of Phytosanitary certificates It has also been decided to introduce a single window clearance system for export certification of plant/plant material by rationalising multiple certificates required for exports. These measures will facilitate larger exports of agricultural commodities.

Agri-Business Consortium

The Government is willing and keen to support innovative ideas for generating income and employment in the rural areas through support to various types of agri-business. It has been decided to establish a Small Farmers Agri-Business Consortium to accelerate agricultural growth, eliminate unemployment and poverty in the countryside, help in exports and at the same time, preserve ecological balance in the development process The Consortium approach is proposed to involve all concerned with development of agriculture including financial institutions, industries, research institutions, NGO's and farmers.

Revitalisation Of Cooperatives

The draft Resolution has placed particular emphasis on revitalisation of cooperatives to provide the needed infrastructural support for the growth of agriculture. All efforts of cooperative societies, which are engaged in economically viable ventures and are professionally managed and democratically run will be given fullest support by the Government The cooperatives will be freed from State control. A model Cooperative Societies Bill has been drafted on the basis of recommendation of the committee appointed by the Planning Commission. The government has prepared a draft National Policy on Cooperatives (NPC), after extensive discussions with all concerned The policy seeks to encourage the cooperatives to grow as self-reliant grassroots democratic institutions owned, managed and controlled by members based on mutual self-help. Cooperatives shall be given highest priority in agro-processing, cottage industries, marketing and export of agricultural commodities, and shall be the instruments for price stabilization consumer protection and sound public distribution system.

The draft Agriculture Policy prepared by the Government provides a framework of policy initiatives for the agriculture sector in a long term perspective. It indicates the directions in which the Government and the country has to go in the matter of agriculture. It is based on ground realities and practical considerations, rather than theoretical prescriptions The Government is keen that it should be exposed to public comments as much as and as widely as possible, so that a well considered and well debated policy is evolved. This is what the Government is trying to do Even if it takes some more time to finalise the draft, the exercise is worth it. □

The author is Union Minister For Agriculture

Developing India's Wastelands

Col. Rao Ram Singh

The rapid expansion of wastelands in the country poses a big threat to the [illegible] base and vital life support system, says the author. To overcome it, he feels, [illegible] dependent land management [illegible] with a view to increasing productivity, restoring fertility and generating more employment opportunities.

INDIA is not short of land, water, solar energy, environmental blessings or human resources. As a matter of fact we are surviving and bearing our big population load mainly with the assistance and gifts of nature. Our problem is not availability of resources, our problem is that of organising and managing them through human energy and intellect and through proper discipline. Uptil now we have failed in this effort or may be, we have not seriously tried in that direction.

Time has now come to address ourselves seriously to this problem. Against the total land mass of about 329 million hectares of the country, as per one estimate, nearly one third of the area is degraded wastelands. Even after excluding some 30 m. ha. notified as forests, nearly 100 m ha. land is non-forest wastelands In order to understand the magnitude of the problem, it would be worthwhile first to know some interesting facts that have necessitated urgent steps to be taken to conserve our natural resources

Rising Population

The post Independence period in India has witnessed a phenomenal rise in the human and cattle population. There has been a simultaneous expansion of area under agriculture to meet the requirements of this increased population and a reduction in the area under forest cover. The following table brings out the position.

Table 1

		1950	Present position
1	Human Population (in millions)	361	844
2	Livestock Population (in millions)	292	416
3	Area under agriculture (in m ha)	94	141 8
4	Reduction in area of Govt forests (in m ha)	—	4.44

Fuel Wood And Fodder

Land, water and biological resources which support agriculture and animal husbandry and provide essential requirements of food, drinking water and fuel have come under severe pressure while meeting the requirements of increasing population Nearly 80 per cent of the country's population living in rural areas depends upon fuel wood as the main source of energy for domestic use, mainly for cooking. The imbalance in supply and demand of fuel wood and fodder can be seen from the estimates given in Table 2.

The non-forest public lands like pastures, grazing lands etc. which were expected to meet the requirements of fuel wood and fodder of the rural people have suffered degradation, encroachment and depletion with the result that one-third of the total land mass of the country stands badly degraded. This rapid expansion of wastelands in the country is seriously undermining the productive

Table 2

	Demand	Supply	Deficit
Fuelwood	235 m cum	40 m cum	195 m cum
Fodder	932 m tonnes	450 m tonnes	482 m tonnes

resource base and endangering vital life support systems.

Land Availability

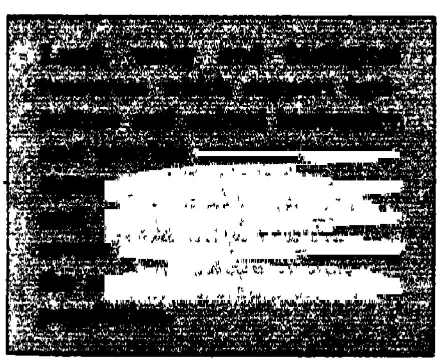
Land is a non-renewable resource and productive land base has been shrinking. Availability of cultivable land per capita will furthur decline to 0.15 ha by 2000 AD against 0.48 ha in 1950.

Soil Erosion

Even the available land is being eroded at an average rate of 16.35 tonnes per ha per year, which is far more than the highest tolerance limit of 12.5 t/ha/yr. Under many land management systems, such as cultivation of steep slopes, shifting slopes etc. there is a high rate of soil loss. Studies have established a definite relationship between the soil erosion rate and the decline in land productivity.

Land Degradation

The productivity loss due to high salt accumulation, water-logging,



dumping of industrial/mining wastes, ravines or stream bank erosion is a serious matter. The area likely to be lost annually through mining is to touch 1400 ha per year by 2000 AD against 500 ha as estimated recently. The area being lost through encroachments of ravines into productive table and forest land is put at 8,000 ha per year. Loss of major nutrients with eroded soil ranges from 5.37 to 8.4 million tonnes. Cumulative loss of bio mass from all these lands is estimated to be between 30 and 50 million tonnes per year.

Biological Degradation

Loss of tree species and retrogression of vegetation in areas under shifting cultivation is significant. Grazing lands such as pastures and community lands through over grazing get compacted and offer stunted and scanty plant growth and also get invaded by inferior and less palatable species.

Hydrologic deterioration

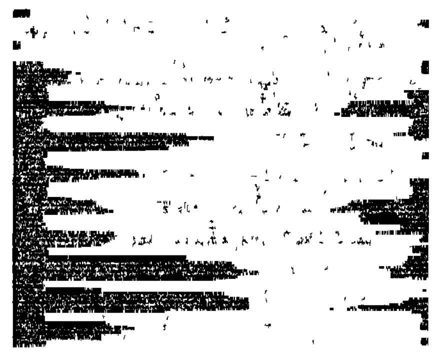
Drying up of wells, springs and seasonal streams and lengthening of dry season is noticeable even in humid and sub-humid areas Desertification seems to be going unabated and desert like situation is engulfing more areas. Reservoir siltation is another serious problem which has been reducing the irrigation and power generation potential created at high cost

Water Depletion

Like land, water is also a depleting resource. Availability of water will be 21 per cent less by 2000 AD. Availability of water in quantity and quality throughout the year depends upon how we manage the land. Estimates show that water will be a scarce commodity very shortly— both for irrigation and domestic purposes. Water management, like land management, has therefore, assumed great importance.

Waste Discharge

Disposal of untreated sewage, industrial effluents and city garbage on land and into streams and lakes, is degrading productive lands. Studies have revealed that out of 142 class I cities, in the case of 44 cities water i discharged into streams and rivers, i 42 cities on agricultural land and i another 32 cities, it is released bot on agricultural and urban lands a well as in rivers. For the remaining 2 cities waste water is discharged int the sea. The natural ecosystems wit their productive potentials are de graded in all these cases.



Garbage dumping is a seriou problem of urbanisation and so is th case with industrial wastes and fl ash Garbage dumping has bee steadily defacing the landscape impeding natural drainage and fou ling the environment over larg areas

Approach

In this grim scenario, to pu wastelands in non-forest areas t sustainable use for increasing bic mass availability, specially of fu wood and fodder is quite challengin Almost 80 per cent of these lands ar privately owned and the rest ar owned by Government, communit institutions etc. The approach an strategy for each of these categorie will have to be different. However, would be necessary to ensure that th approach does attempt to meet th basic objective of the country's lan management that moves toward achieving a significant improvemen in:

(i) Production consumption/ utilisation processes;

(ii) Creation of secured and

remunerative livelihood to the members of society particularly the rural poor; and

(iii) Provision of material inputs to create and support additional employment and income generating activities.

The approach should be such as to meet the challenge of increasing and sustaining the population supporting capacity and productivity of land.

Strategy

Examination of issues relating to degradation of land throughout the country and their linkage with the socio-economic well being of communities reveals that the mandate given to the National Wastelands Development Board (NWDB) can be achieved effectively only through an integrated and inter-dependent land management system which would:

(i) regenerate the fertility of the resources base in terms of availability of nutrients and moisture;

[illegible]

(ii) increase per ha productivity of bio-mass per year, and

(iii) provide more employment opportunities and finally generate higher incomes to the beneficiaries concerned.

One of the crucial deficiency seems to be lack of in-depth analysis of problem identification of a particular wasteland area taking into consideration the needs and aspirations of the community as well as requirement of maintaining the basic resources at a level to yield required output over the years to come. The activities for wastelands development programmes could be listed, therefore, as under:

(i) Carrying out in-depth studies on micro-level for the problem identification.

(ii) Preparing perspective plans indicating broad package of technology, essential institutional base and the gaps in policy support to be filled up.

(iii) Evolving or locating models for development that would utilise the inherent capabilities of the land to re-generate its fertility and productivity with minimum capital intensive external inputs.

(iv) Building up awareness of the need of integrated and inter-dependent land management systems for improving immediate and long-term needs, offering greater employment and income through such management systems.

(v) Harnessing peoples initiatives in problem identification, preparing project outlines, implementing the projects and shouldering responsibilities in sharing the benefits as well as liability to maintain the system through cooperative efforts.

(vi) Promoting greater inflow of science and technology inputs and flow of finance from national and international institutions for accelerating the pace of programme implementation

(vii) Developing communication and extension strategy package and material for dissemination of the same through available media.

Schemes

With a view to achieving these objectives, the Department of Wastelands Development is implementing the following schemes:

(i) Integrated Wastelands Development Project Scheme: The basic objective of this 100 per cent centrally sponsored scheme, begun in

[illegible]

'89-90, is to enable the start of pilot projects at field level in the States It aims at integrated land management and wastelands development based on village/micro-watershed plans The plans are prepared after taking into account land capability, site conditions and local people's needs The scheme also aims at enhancing the content of people's participation in the wastelands development programme at all stages, which is ensured by providing modalities for equitable and sustainable sharing of benefits from such projects.

The Scheme being multi-faceted and multi-disciplinary would attempt at the preparation of integrated wastelands management plans at the local level on water shed basis in the selected districts for which detailed wastelands maps have been prepared and on the basis of available thematic information in other districts. The major activities undertaken in the scheme area:

—Soil and moisture conservation, small scale engineering structures

and vegetative measures like gully-plugging, check dams, water harvesting structures etc.

—In-situ soil and moisture conservation measures like terracing, bunding, trenching, vegetative barriers etc.

—Planting and sowing of multi-purpose trees, shrubs, grasses, legumes and pasture land development.

—Encouraging natural regeneration.

—Promotion of agro-forestry, horticulture, scientific animal husbandry

—Wood substitution and fuel wood conservation measures.

—Measures needed to disseminate technology.

(ii) Scheme for Area Oriented Fuel wood and Fodder Projects: The main objective of this 50 per cent centrally sponsored scheme is to promote integrated development of identified watersheds by combining activities like tree planting, agro-forestry, silvipasture development, horticulture and soil and moisture conservation with a view to—

(i) Checking land degradation and regeneration of degraded lands/watersheds;

[illegible]

(ii) Augmenting production of fuel wood, fodder and forest produce specially from community and degraded forest lands and also taking steps to promote fuel wood conservation and substitution

(iii) Involving the village community/local people in the programme.

The State Forest Departments or other State Government agencies will identify suitable watersheds to be covered under the scheme. In the process of identification and selection of such watersheds, gram panchayat or other village level bodies will be involved actively.

Each project may comprise at least 200 ha and particular site selected for treatment should not be less than 10 ha in area.

While preparing a project, the Forest Department as the nodal agency, will consult other concerned departments like Agriculture, Rural Development, Animal Husbandry Horticulture, Soil Conservation, Revenue etc. to eliminate chances of overlapping or duplication of efforts in the identified watersheds

(iii) Grant-in-aid Scheme: Grant-in-aid under this 100 per cent Central Sector scheme is available to registered Voluntary Agencies, Cooperatives, Mahila Mandals and Yuva Mandals and other similar organisations for undertaking work directly or indirectly connected with afforestation and wastelands development The work could include actual implementation of small programmes, creation of awareness, training and extension, organisation of people for regeneration, protection etc Implementable projects can be taken up on public as well as private lands Projects with a higher degree of voluntary contribution and people's participation preferred. Funds are released directly to a voluntary agency, after an appraisal which is conducted with the cooperation of the State Government concerned These projects are evaluated at different stages by independent evaluators as well as in-house officials for effective monitoring.

(iv) People's Nurseries Scheme: The Scheme of People's Nurseries implemented during the Seventh Five Year Plan was intended:

(a) To bring nursery raising into the people's sector for providing sustained self employment in rural areas, specially to the rural poor, women and disadvantaged sections individually and through organisations including schools, cooperatives etc.

(b) To make available locally good quality seedlings of the desired species in requisite quantities within reasonable distance by

[illegible]

building up a network of people's nurseries.

(c) To encourage farm forestry etc. as an economically remunerative activity, especially on degraded farm lands thereby increasing employment potential and income generation.

The scheme has been transferre to the States from the curren financial year.

(v) Margin Money Scheme: Th principal objective of this 100 pe cent Central Sector scheme is t encourage flow of institutiona finance for Farm Forestry Project by extending Central assistance t projects which need to be brough within the economic viability criteri of NABARD.

Organisation/institutions eligibl for assistance are—(a) Governmer and semi-government (Central an State) Corporations; (b) Urba

Development Authorities, Municipal Corporations and public autonomous bodies; (c) Cooperatives registered under Multi-states Cooperative Act, 1984 (Act 51 of 1984) and Co-operative Institutions registered under State Cooperatives Acts; and (d) Registered Societies, Companies or Trusts. Under the Scheme upto 25 per cent of the project cost is given as grant (margin) by the Central Government (NWDB) provided—

(i) an equal matching contribution is given by eligible institution/State Subsidies available to individuals under poverty alleviation programmes under other schemes will be eligible for consideration as matching contribution. In exceptional circumstances matching contribution amount may be relaxed.

(ii) at least 50 per cent of the total project cost is financed by a financial institution.

The grant amount is based on the need to make a project bankable.

In order to be eligible for assistance, the project should be appraised by lending bank institution and after it is accepted in principal, the board considers the project for margin money.

To sum up, the development of wastelands in general and those in forest areas in particular, for their sustainable use would call for re-generating or recreating an integrated inter-dependent land management system. This would have to yield the services to the individuals and communities on recurring basis in terms of aggregate biomass availability, employment and income. For this in-depth analysis of problem identification, micro level planning, harnessing the people's initiative and bringing in more science and technology inputs will be required.

The author is Minister of State for Wastelands Development

BAN ON ARRACK

A Historic Decision By Your Government For Your Welfare



The Government of Andhra Pradesh, under the dynamic leadership of Chief Minister Sri **K. Vijayabhaskara Reddy** has banned the sale and consumption of Arrack from 1st October 1993 throughout the State. This ban came into force immediately in Nellore District.

Sale and consumption of Toddy is also banned in municipal towns and villages with no palm trees within a radius of 5 k.m.

The Government took the decision to ban arrack with the noble objective of protecting the poor and the weaker sections from the evil habit.



The Government gave priority to the health and well-being of the poor and imposed complete ban on sale of arrack sacrificing an annual Excise Income of Rs. 600 crores.

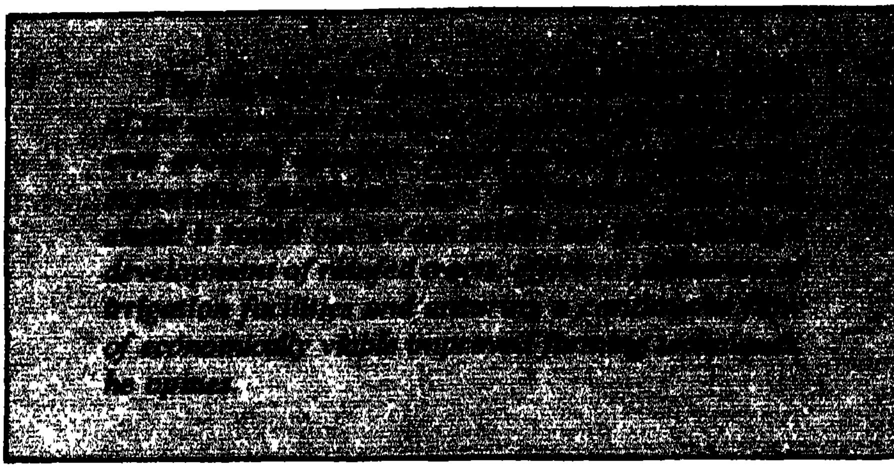
The co-operation and help of all sections of the people is needed to make this courageous step a success. Voluntary service organisations, intellectuals, women's organisations, youth and those favouring social reform should come forward to extend their co-operation.



Issued by the Commissioner Information and Public Relations, Andhra Pradesh

Agriculture And The Eighth Plan

Dr. Jayant Patil



MAHATMA Gandhi gave us economic thought "According to me the economic constitution of India, and for that matter for the whole world, should be such that no one under it should suffer from want of food and clothing In other words, everybody should be able to get sufficient work to enable him to make the two ends meet And this ideal can be universally realised only if the means of production of the elementary necessities of life remain in the control of masses They should be freely available to all as God's air and water are or ought to be. . ." After our Independence, a process of planned economic development was initiated. On agriculture, Pt Nehru had said "everything else can wait but not agriculture".

Indian agriculture continues to greatly depend on weather conditions, primarily rainfall and its proper distribution in time and space As a consequence, we have been facing droughts, floods and to some extent hailstorms determining our production levels In spite of these natural factors which are beyond one's control, planned agricultural development constitutes a glorious chapter in the history of Independent India's progress. The march of the Nation from an era of scarcity and dependence on inputs to one of self-sufficiency within a short period of four decades is no small achievement The achievements were thus the results of planning and implemention of production programmes with hard work of our farmers with the necessarey support of reasearch, extension and input services agencies This can best be illustrated in Table 1.

In recent years, higher production, with record achievements, have been attained as shown in Table 2.

The years 1991-92 and 1992-93 have given us record production in foodgrains, wheat, coarse cereals, pulses, oilseeds, sugarcane and cotton. This greatly helped in overall economic development of the country.

On our population front, we have been given a warning that our population would reach one billion by 21st century. This must concern all citizens. We have to collectively explore and evolve means to face the challenges especially to meet the food, fodder, fuel and fibre demands of the teeming masses Our need for foodgrains by 2001-02 has been projected at about 245 million tonnes keeping in view the population level as we attain. Besides foodgrains, we will have to develop our commercial crops, horticulture, animal husbandry and dairying, fisheries and allied sectors to generate exportable surpluses to earn valuable foreign exchange for sustainable development. The levels of production attained in Sixth Plan, Seventh Plan and targets of production are given in Table 3. The corresponding figures for growth rates are in Table 4. The projections of area, producton and yield for major crops are given in Table 5.

Table 1

Some Indicators of Agricultural Development

Sl. No.	Item	Unit	1950-51	1980-81	1990-91
1	Foodgrains	Million Tonnes	50 80	129 59	176 39
	a) Wheat		6 46'	36.31	55 14
	b) Rice	"	20 58	53 63	74 29
	c) Coarse Cereals	"	15 38	29 02	32 70
	d) Pulses	"	8 41	10 63	14 26
2	Oilseeds	"	5 16	9 37	18 61
3	Sugarcane	"	57 05	154 25	241 05
4	Cotton	Million bales (of 170 kgs each)	3 04	7 01	9 84
5	Jute & Mesta	Million bales (of 180 kgs each)	3 31	8 16	9 23
6	Milk	Million tonnes	17 00	31 60	53 71
7	Egg	Million numbers	1,832	10,060	21,055
8	Wool	Million kgs	27	32	42
9	Tea	000 tonnes	275	570	719
10	Coffee	"	24 6	118 6	173
11	Rubber	"	14 4	153 1	330
12	Fish	Million tonnes	0 75	2 4	3 83

Table 2

Some Indicators of Agricultural Development in Nineties

Sl No	Item	Unit	1989-90	1990-91	1991-92	1992-93	1993-94 (target)
1	Foodgrains	Million tonnes	171 04	176 39	167 06	180 30	188 00
	a) Wheat	"	49 85	55 14	55 09	56 90	58 50
	b) Rice		73 57	74 29	73 66	71 90	78 00
	c) Coarse Cereals	"	34 76	32 70	26 26	36 80	36 00
	d) Pulses	"	12 86	14 26	12 05	14 70	15 50
2	Oilseeds	"	16 92	18 61	18 28	21 20	21 00
3	Sugarcane	"	229 57	241 05	249 26	239 02	245 00
4	Cotton	Million bales (of 170 kgs each)	11 42	9 84	9 84	11 96	12 50
5	Jute & Mesta	Million bales (of 180 kgs each)	8 29	9 23	10 18	7 62	9 30
6	Milk	Million tonnes	51 44	54 9	57 5	58 6	63 00
7	Egg	Million Nos	20,204	21,300	22,800	23,100	25,000
8	Wool	Million kgs	41 7	42 0	43 6	43 3	48 6
9	Tea	000 tonnes	714 90	719 0	741 72	765 0*	807.84(P)
10	Coffee	000 tonnes	215 00	173 0	180 00	185 5*	193 85(P)
11	Rubber	000 tonnes	297 30	330 0	366 70	405 0*	446 72(P)
12	Fish	Million tonnes	3 67	3 83	4 15	43 21	45 72

*** Likely Achievement**
(P) Proposed

Investment In Agriculture

Production in the agriculture sector has increased manifold due to the investment made in this sector in the last four decades. The investment (at 1980-81 prices) in agriculture which stood at Rs. 1,266 crore in 1950-51 increased to Rs. 5,246 crore by 1978-79. However, since 1978-79, the investment in agriculture has been decreasing and was only Rs. 4,692 crore in 1990-91. The primary reason for this decline in investment in agriculture is deceleration in public investment during the eighties. Private investment in this sector has remained by and large the same during the period.

The share of agricultural investment in the total investment came down from 22% in 1950-51 to 19% in 1980-81 and further to about 10% in 1990-91. This has adversely affected the public sector investment in irrigation as more than 90% of the total public investment in agriculture goes for irrigation. The share of irrigation sector (States only) in the total public sector investment came down from 14.7% in 1980-81 to only 5.6% in 1990-91. Whereas total public sector investment (at 1980-81



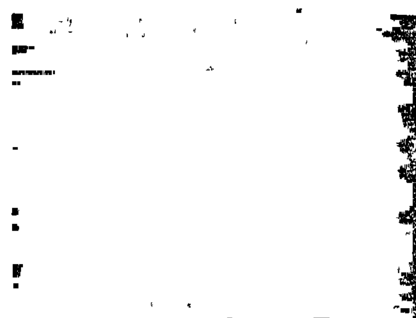
prices) increased at a rate of 6.3% per annum from Rs. 11,767 crore in 1980-81 to Rs. 21,613 crore in 1990-91. Investment in irrigation sector declined at 3.5 per cent per annum from Rs. 1,735 crore in 1980-81 to Rs. 1,215 crore in 1990-91. This decrease was more pronounced at the rate of 6.1 per cent per annum during the Seventh Five Year Plan as compared to 2.2 per cent per annum during the Sixth Plan.

Expansion of irrigation facilities have been an important factor in the continuation of green revolution initiated during the sixties with the introduction of high yielding varieties. The importance of this sector has increased even more due to stagnation in the Net Sown Area and faster increase in the demand of agriculture products, both national and international The ultimate irrigation potential of the country as estimated by National Commission on Agriculture (1976) is 113.5 million hectares. National perspective has been revised to 178 million hectares as per the national perspective on water resources. Only 20 6 million hectares of land was irrigated till 1951. It increased to 73.1 million hectares in 1991-92 averaging about 1.3 million hectares per annum The average annual increase during fifties was only 0.5 million hectares which went up to 1.6 million hectares during the eighties It is targetted to grow by about 2 7 million hectares per annum during the Eighth Plan period To achieve this target, investment in irrigation sector will have to be boosted and the prevailing trend of deceleration will have to be reversed at the earliest for overall development of agriculture sector

Under the Eighth Plan, efforts are being made to consolidate the gains of agriculture production technology for quantum jump in production to meet the domestic needs and generate exportable surpluses while ensuring sustainability to achieve commercial viabilities in agriculture, use of science and technology in a competitive framework has been adopted Self-sufficiency in food production ensuring food security is our priority.

The major thurst of agriculture and allied sector during the Eighth Plan are:

i) **Dryland/Rainfed/Problem Area Development:** a) The major goals would be to conserve and utilise the natural endowments; b) To secure stability and



growth of agricultural production and productivity, c) To generate employment and income opportunities by developing backward and forward linkages, d) To promote restoration of ecological balance through watershed management and other programmes and e) To reduce regional inequalities through special area based programmes

ii) **Accelerated Agricultural Growth in Eastern Region:** This region has high potential for agricultural development and support for infrastructure will be provided to increase the productivity in this region, particularly in horticulture and agro-processing areas

iii) **Agricultural Diversification:** Much greater emphasis would be given to diversify cropping system through shifting of marginal and degraded land from low productivity crops to horticulture, viz,

Table 3

Eighth Plan Production Targets

Target and Achievement of Production in Agriculture Sector

Sl.	Agricultural Crop Product	Unit	6th Plan (1984-85)	7th Plan (1989-90)	8th Plan (1992-97)		
			Target	Achievement	Target	Achievement	Target
1.	Rice	M Tonnes	63.00	58.34	72.00	73.57	88.00
2.	Wheat	"	44.00	44.07	54.60	49.85	66.00
3.	C. Cereals	"	32.50	31.17	32.80	34.76	39.00
4.	Pulses	"	14.50	11.96	14.50	12.86	17.00
5.	Foodgrains	"	154.00	145.54	174.10	171.04	210.00
6.	Oilseeds	"	11.10	12.95	17.00	16.90	23.00
7.	Sugarcane	"	215.00	170.00	206.00	225.60	275.00
8.	Cotton (Lint)	Million bales (170 kgs each)	9.20	8.51	9.50	11.41	14.00
9.	Jute & Mesta	Million bales (180 kgs each)	9.08	7.79	9.50	8.35	9.50
10	Tea	000 Tonnes	705.00	640.00	766.00	714.70	950.00
11	Coffee	"	159.00	195.00	180.00	215.00	220.00
12.	Milk	"	38,000	41,500	50,900	51,448	70,000
13.	egg	M Number	16,300	14,252	19,900	20,204	30,000
14.	Rubber	000 Tonnes	200.00	175.00	265.00	297.30	600.00

Table 4

Eighth Plan Agriculture Growth Rates

Target and Achievement of Growth in Agriculture Production

(Per cent per annum compounded)

Sl.	Agricultural Crop Product	Unit	6th Plan (1984-85)	7th Plan (1989-90)	8th Plan (1992-97)		
			Target	Achievement	Target	Achievement	Target
1	Rice	M Tonnes	8.28	6.63	4.0-4.6	4.75	3.95
2	Wheat	"	6.69	6.72	4.5-4.8	2.50	3.34
3	C Cereals	"	3.80	2.94	1.2-1.8	2.20	5.40
4	Pulses	"	11.09	6.89	2.9-4.3	1.46	3.96
5	Foodgrains	"	7.02	5.82	3.5-4.1	3.28	4.01
6	Oilseeds	"	4.90	8.18	6.70	5.46	5.61
7	Sugarcane	"	10.79	5.74	3.80	5.78	3.19
8	Cotton (Lint)	Million bales (170 kgs each)	3.76	2.15	4.80	6.04	8.10
9	Jute & Mesta	" (180 kgs each	2.67	-0.43	4.80	1.40	1.09
10	Tea	000 Tonnes	5.48	1.51	3.50	2.23	5.10
11	Coffee	"	1.17	5.38	-1.59	1.97	9.46
12	Milk	"	4.56	6.42	5.60	4.39	4.01
13	Egg	M. Number	11.35	8.40	8.10	7.23	5.69
14	Rubber	000 Tonnes	1.03	-1.63	7.20	11.16	10.15

fruits, vegetables, spices and plantation crops. Such diversification would be supported by appropriate pricing policies and market infrastructure.

iv) Support To Agricultural Commodities: Along with diversification, efforts

would be made through production programmes and policies to explore the foreign market as well. Planning Commission had constituted a group of experts to suggest and work out the modalities from production to exit points. The Report of this group has been submitted and work has started in this direction.

v) **Post Harvest Technology:** Greater attention would be given for post harvest technology for both internal as well as international markets.

vi) **Inputs And Credit:** It is proposed to improve delivery of inputs and credit to farmers and encourage agriculture and related consultancy services through self-help scheme for self-employment for agricultural graduates and veterinary doctors.

vii) **Horticulture:** Horticultural development has been identified as one of the thrust areas. The broad thrust areas would include emphasis on the development of horticultural crops in the arid zones, spices cultivation in the North East, extensive development programmes for temperate and tropical zones, the hilly regions and ravine areas facing special problems of land degradation.

viii) **Fisheries:** Integrated fish farming, brackish water aquaculture, sericulture, development of post harvest technology, marketing and augmentation of infrastructure facilities are important areas where consolidated efforts will be made during the Eighth Plan.

ix) **Animal Husbandry And**

Table 5

Eighth Plan Targets of Major Crops

A—Million ha
P—Million Tonnes
Y—Yield kgs/ha

Crop	1991-92*			1996-97 (Projections)		
	A	P	Y	A	P	Y
Rice	42 31	73 66	1741	43 50	88 0	2023
Wheat	22 98	55 09	2 397	24 25	66 0	2 722
Coarse Grains	33 75	26 26	778	37 75	39 0	1 033
Pulses	22 57	12 05	534	24 50	17 0	694
Foodgrains	121 61	167 06	1 374	130 0	210 0	1,615
Oilseeds	25 42	18 28	719	24 5	23 0	939
Sugarcane	3 78	249 26	65,831	3 9	275 0	70,513
Cotton (M bales)	7 69	9 84	217	7 5	14 0	317
Jute & Mesta (M bales)	1 10	10 18	1,656	1 0	9 5	1 710

*In Plan Document likely production figures were provided.

Table 6

Agricultural Perspective

Variable	1991-92	1996-97	2001-02	2006-07
Net sown area (mha)	140 0*	141 0	141 0	141 0
Gross Cropped area (mha)	182 0*	190 6	197 2	203 4
Irrigation (mha)	75 70*	89 3	102 0	114 0
Fertiliser (Million tonnes nutrients)	12 73	18 3	23 7	30 0
Cotton (M bales)	9 84	14 0	18.0	23 0
Sugarcane (M. tonnes)	249 26	275	335	408
Oilseeds (M tonnes)	18 28	23 0	29 0	37 0
Foodgrains (M tonnes)	167 06	210.0	245 0	285 0

*Likely

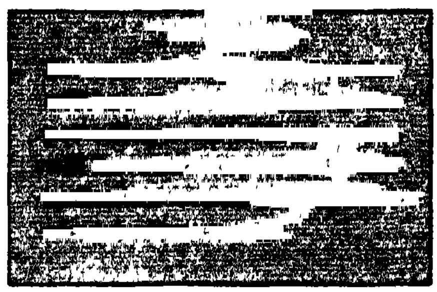
Dairying: In this plan, we expect that this sector will play a greater role in providing subsidiary means of income and livelihood to millions of small farmers in the country. This would help in improving the socio-economic conditions of the rural masses.

x) **Oilseed Production:** In order to provide sustainability in oilseed production to meet our domestic needs and save valuable foreign exchange, both short term and long term measures would be taken. These would include production programmes to processing and enlarging cultivation of coconut and red oilpalm to meet our requirements.

Agricultural Perspective

India will have an estimated 941 million people by the year 1997 A.D. This will increase to 1,102 million by 2007. With this population and given improvements in consumption levels associated with growth in incomes, the estimated foodgrain requirement for 1997 and 2007 will be around 208 million tonnes and 283 million tonnes respectively. The foodgrain production has to match this level of demand. The required production levels of foodgrains by 1997 and 2007 are 210 million tonnes and 285 million tonnes respectively. Main projections are given in Table 6.

The required development in agriculture can, in the long run, be achieved only through a regionally more broad-based pattern of growth by devoting greater attention and resources to the development of rainfed tracts, utilising efficiently the created facilities for irrigation and

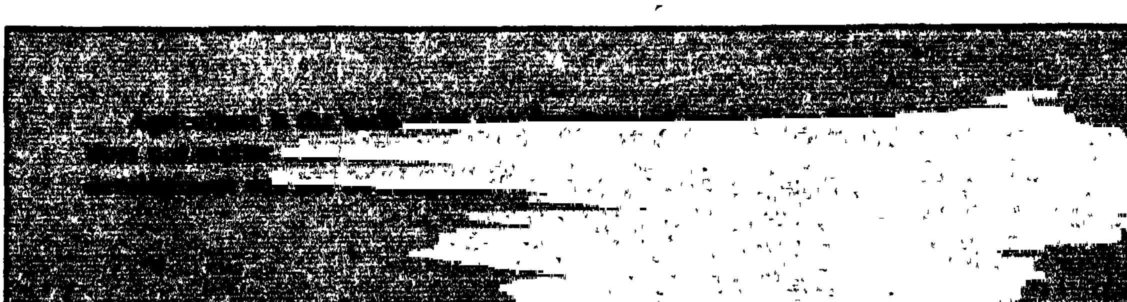


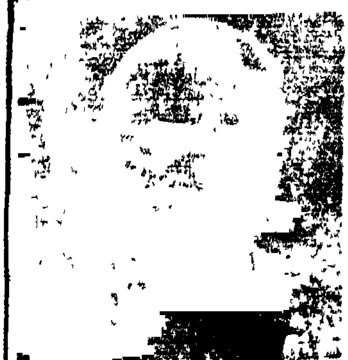
maintaining a continuous flow of economically viable improved techniques, both for rainfed as well as irrigated areas. The concept of planning for agriculture in terms of homogenous agroclimatic areas needs to be intensified and institutionalised.

Growth of animal husbandry sub-sector will help in increasing employment and bring about income redistribution in favour of small and marginal farmers and landless labourers. The production of milk and milk products is targetted to grow at about 4 per cent per annum from the present level (1991-92) of 57.5 million tonnes. By 2007 the total supply of milk will be of the order of 105 million tonnes. The supply of egg is targetted to grow at about 6 per cent per annum. A quantum jump in fish production is envisaged through creation of appropriate infrastructure. These measures will contribute to an estimated growth rate of about 6.6 per cent in fishery sub-sector. As a result, fish production is expected to increase to 5.5 million tonnes by 1997 and 10.5 million tonnes by 2007 A.D.

Energy intensity of agriculture has been rising through direct uses of energy as well as through its indirect use via fertiliser. The imperatives of raising productivity in view of the constraints on land and rising demand for food, fibre and other agricultural products, implies that energy intensity will further rise. However, massive efforts need to be mounted now to make improvements in the efficiency with which energy is used Efficient use of water and efficient use of fertilisers are the two areas which need to be paid special attention. More investment needs to be made in research in the area of biotechnology to make possible integrated nutrient and pest management through cultural, genetic and biological methods. ☐

The author is Member, Planning Commission.







Evolving Appropriate Technologies For Agricultural Development

Prof. C.H. Hanumantha Rao



THE green revolution experienced n India in the last two and a half lecades and the achievement of self-ufficiency in foodgrains represent a uccess story for the Science and 'echnology (S & T) sector in India. ndeed, the achievements in agri-ıltural production so far do not ılly reflect the strength of our gricultural research system which is been very much augmented, ırticularly in the last decade and a lf, to meet the specific requirements Indian agriculture in diverse agro-matic and socio-economic situations. jually important, the farmers in lia—big and small—even in the note regions have become aware, ough the extension work as well as m their own experience of the plication of new and improved ctices, of the benefits of new nology. Their demands for dern inputs as well as eagerness to know about improved methods have been increasing, so that one finds in the countryside today the emergence of S & T based agriculture very different from the one known two and a half decades ago. All these developments—the potential of our agricultural research system and the response of the farmers—offer a great promise for acceleration of agricultural growth in the near future.

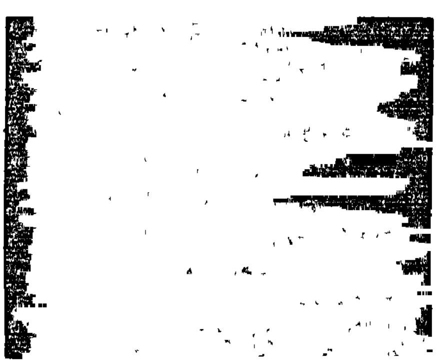
It is, however, necessary to examine critically the recent experience in regard to the application of science and technology to Indian agriculture, with a view to enhancing its role in stepping up agricultural output as well as for ensuring a more equitable and wider sharing of benefits from the application of new technology. The gains from green revolution have so far been limited largely to wheat and rice grown more or less in homogenous tracts—both agro-climatically and socio-economically—served with assured sources of irrigation and inhabited by resourceful farmers. Whereas certain individual crop yields have been stepped up significantly, multiple cropping as reflected in cropping intensity has not been increasing much in areas with large untapped groundwater potential and plentiful supply of labour. The limited spread of green revolution can be explained partly by the nature of the available technology itself and partly by the uneven development of infrastructure, physical as well as institutional, which is a prerequisite for the adoption of improved practices.

Plan Strategy

The Plan strategy for agricultre in India is geared to the objective of

substantial reduction in rural poverty, reduction of regional and cropwise disparities in growth, development of dryland farming, imparting stability and bringing about better balance between crop production and forestry. These objectives are highly interrelated and are mutually reinforcing. Agricultural development of less developed regions and dryland areas can contribute significantly to the objective of employment generation and reduction of poverty. Crops like oilseeds and pulses where the supply-demand gap is highest are grown essentially under dry farming conditions. Measures to impart stability to agriculture such as development of public irrigation, evolution of varieties of seeds that are drought and pest resistant directly benefit the regions and farmers who are resource-starved. Development of social forestry, apart from contributing to soil and moisture conservation, raises employment opportunities and meets the basic requirements of fuel and fodder.

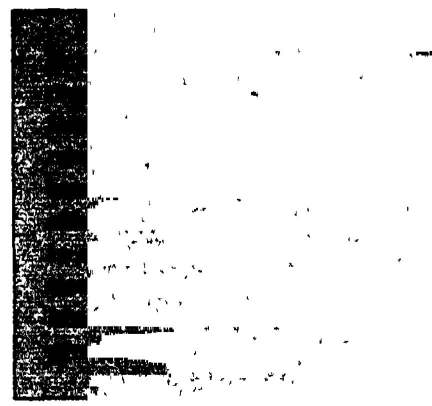
These objectives pose quite a few challenges in the field of agricultural science and technology. Scientists



have to increasingly address themselves to less endowed and difficult environmental situations characterised by diverse conditions such as moisture stress under low rainfall that is highly variable and the low-lying areas usually under floods. They have to cope with the problems of energy intensive crops, e.g., oilseeds which are highly prone to pests and diseases. In socio-economic terms agricultural research has to take into account the low investible capacity as well as limited risk bearing capacity of small and marginal farmers and those in the tribal areas. In view of these highly variable agro-climatic and socio-economic situations, the recommendations as to the improved methods of farming have to be highly location specific.

For coping with the new challenges outlined above, the following strategies may be necessary. First, widening the base of research to cover a large number of new crops grown in diverse agro-climatic situations. This would necessitate considerable amount of adaptive research to bridge the wide gap existing now between the known potential and the results realised so far in the field. To achieve this, scientists would have to increasingly move nearer the farmers' fields so that the reverse communication from land-to-lab becomes really effective. Secondly, the emphasis would have to shift from yield-raising practices, through intensification of modern inputs for individual crops taken in isolation, to maximising the combined income from all the crops grown in an agricultural year This would necessitate research in intercropping and cropping systems including the rotation of crops for the entire year suited to different agro-climatic conditions so as to make maximum use of farmers' own resources such as land and labour as well as fully tap the natural resources such as groundwater, sunshine and precipitation throughout the year. Thirdly, there would have to be adequate emphasis on research to conserve and save on inputs. Research in water management including water harvesting techniques, biological fixation of nitrogen, minimising wastages in the use of chemical fertilisers and evolution of high-yielding seeds incorporating multiple resistance to pests and diseases and adverse environmental conditions belong to this catagory.

The two basic ingredients of this process are building up of an agricultural research system where the scientists are competent as well as sensitive to the problems in the farmers' fields and the extension system which disseminates useful techniques to the farmers as well as makes them increasingly science and technology conscious.



Experience

The presumption that green revolution technologies have been basically evolved within the developing countries in response to the prevailing factor endowment is not an accurate description of the reality. Many of them have been, in a large measure, transferred from the developed country situations and adapted to the specific circumstances of the developing countries. Therefore, it becomes necessary to understand the features of these technologies which are influenced by the circumstances of the developed countries. It is also necessary to understand the circumstances in the developing economies responsible for their transfer and congenial for their adaptation.

Several developed countries, notably the U.S.A. and Japan, experienced major breakthrough in crop yields during the first two decades following the Second World War. The infrastructures for agriculture, including water management

in particular, were very well developed in these countries. The new seed-fertiliser technologies were evolved there to suit the favourable or relatively homogenous agro-climatic evironments. Moreover, agricultural breakthrough in this period followed the industrial take-off. Apart from the availability of industrial inputs, labour was becoming costly for agriculture. This happened in such diverse situations as the U.S.A. where land was not a scarce factor and in Japan where there was an extreme scarcity of land. The new bio-chemical technologies were, therefore, not only land-saving but also labour-saving and highly capital-using. Further, the entire institutional framework including farmers' consciousness and administrative capabilities were conducive to the speedy absorption of new technologies. This explains why the expenditure on extension services as a ratio to the value of agricultural output was very low in these countries when compared with the developing countries.

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The challenge of growing population pressure, in the post-war period, on the limited land available was compelling the governments in many of the developing countries to borrow the yield-increasing technologies from the developed economies. It is not surprising, therefore, that land-saving technology was widely adopted in India in the early phase of green revolution in areas where the availability of land per worker was significantly higher than the national average. On the other hand, regions where land was extremely scarce and labour was abundant lagged behind for quite some time in the adoption of land-saving techniques.

Environmental or agro-climatic suitability of new technology appears to be the most important factor explaining the regional variation in the impact of new technology. It is understandable that the areas endowed with favourable environment should also be resourceful both in terms of investible capacity and institutional preparedness. The regions with low to medium rainfall but served with assured sources of irrigation have proved so far to be most suitable for the profitable application of new seed-fertilizer technologies. These areas are sufficiently exposed to sunshine and are relatively free from the incidence of pests and diseases. It is also not accidental that the top four States in the country in respect of per capita income have taken a lead in the adoption of new technologies. These are Punjab and Haryana which have assured irrigation facilities and Gujarat and Maharashtra which are mainly dependent on rainfall. Apart from the resourcefulness of farmers, these State Governments have adequate resources and have relatively efficient and responsive administration.

New Priorities

The new priorities in agricultural research in India were (i) to reduce yield variability in rainfed areas by evolving high stability varieties (HSV) rather than introducing merely high-yielding varieties (HYVs). This requires varieties with multiple resistance to pests and droughts as also conservation of soil moisture; (ii) to minimise costs to the farmers through various input-saving practices including biological fixation of nitrogen; and (iii) to evolve cropping and farming systems to raise the incomes of farmers by making the optimum use of their resources throughout the year.

These new priorities require greater interaction with field situations through location-specific research, as unfavourable environments are highly heterogeneous. Besides, greater participation by the farmers in testing out research becomes necessary. Greater collaboration between agricultural economists and social scientists, particularly agricultural economists, is also needed for understanding the socio-economic rationale of the prevailing systems. Such a knowledge would help to tailor technology to suit the resource endowments and needs of the farmers.

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The yield increases in the last decade for lagging crops like rice, oilseeds and pulses, have come more from the vigorous extension of available technology to new areas through special programmes than from breakthroughs in technology. This experience underscores the importance of special programmes and input subsidies in a situation where the green revolution of the early period has brought down the relative prices of output, where yield variability is high and where farmers are resource-poor and risk-averse. Special efforts to ensure remunerative prices to farmers, particularly for oilseeds, also had a significant impact.

The results of National Demonstrations conducted on farmers' fields under the Transfer of Technology Projects of the Indian Council of Agricultural Research, suggest a large gap between the demonstration and national average yields and that

the yields can be increased 2 to 3 times in all the major crops. However, under similar agro-climatic conditions, the yield gap between the actual and the potential is, in general, no more than 50-60 per cent. The yield gap between the actual and the potential seems to be higher under rainfed conditions and during the kharif season suggesting that the input use by farmers may be restricted owing to uncertain rainfall conditions. Since these yield demonstrations are individual crop-oriented, it is not known how well these new varieties would fit into the cropping systems of the farmers The deficiency is most glaring in respect of cropping and farming systems research which is perhaps the most difficult area, as it is both multidisciplinary and field-oriented

The net returns per rupee invested seem to be higher under irrigated conditions or for rainfed kharif crops when soil moisture is adequate This potential for raising yields and reducing their variability has promoted the integration of the task for genetic improvements in seeds with the measures for soil and moisture conservation in the dry farming strategy The National Watershed Development Programme which has been designed for rainfed areas with water-harvesting as one of its major components, seems to have taken a shape after years of experimentation and can be expected to yield significant results in the years to come

New Policy Thrusts

The achievements of the Indian agricultural research system so far in respect of raising yields and reducing variability in the unfavourable agro-climatic regions are not comparable with those realised for the favourable environments in the early years of green revolution. The tools of emerging biotechnology like genetic engineering, tissue culture, etc., offer significant possibilities for breaking these barriers.

The genetic manipulation of plants will close the gap between the actual and the potential yields by providing plants with more robust resistance to pests and diseases. Also, changes in the genetic make up of plants can be engineered to cope with the abiotic stresses from adverse soil and climatic conditions. It is thus possible to modify the physiological responses of plants to environmental stresses and to modify the architecture of plants so as to better fit as complementary partners in production systems to achieve intensive double cropping.

With the introduction of biotechnologies, 'genetic engineering' would largely replace 'chemicalisation' associated with green revolution technology. 'Seed' becomes central to biotechnology.

Perhaps the most important feature of biotechnology distinguishing it from the green revolution or seed-fertiliser technology is the possible saving on chemical inputs e.g pesticides and fertilisers, because of the potential for post-resistance, for bio-fertilisers and biological fixation of nitrogen With the introduction of biotechnologies, 'genetic engineering' would largely replace 'chemicalisation' associated with green revolution technology. 'Seed' becomes central to biotechnology.

Through much better capability of new plants to withstand the biotic as well as abiotic stresses, biotechnology imparts stability to crop yields, even as it closes the gap between the actual and the potential yields by reducing crop losses and enables wider geographical coverage when compared to green revolution technology which is suited to agro-climatically favourable areas. Because of much greater efficiency and savin of time in the engineering of ne seeds when compared to the evolutio of seeds through the traditional plai breeding methods, the rate of tecl nological advance is likely to be qui fast, especially because of wid possibilities opened up by biotecl nology. Usually when technologic changes are fast, the rate of obsol scence is also likely to be high in qui a few cases. Even though biotecl nologies will save on chemical input they will be knowledge-intensive an skill-intensive, necessitating great investments in research as well as i improving capabilities of farmers.

The pro-poor bias of biotecl nology arises from its scale-neutrali at the farm level as in the case of see fertiliser technology, saving c chemical imputs, stability in yiel and the improved prospects for cro grown in unfavourable areas. Hov ever, the realisation of pro-po potential depends on the prioriti for research For, biotechnolog present a wide range of options an they can be engineered equally to su the entrenched interests to tl detriment of the poor. The class example is that of the choice betwe pest-resistant versus pesticide-res stant varieties of seeds The form can be pro-poor as well as enviro mentally sound because of tl savings on pesticides, whereas tl latter can promote the interests multinationals doing business pesticides

The advanced research capab lities of the developed countries ca be harnessed to produce substitut for imports from the less develop countries thus aggravating the pover problem.

The high flexibility of biotecl nology enhances the role of researc strategy and policy. The role governments of developing countri for setting up right priorities biotechnology research and for ach eving self-reliance in R & D, becom

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Agriculture And National Economy

Dr. Malcolm S. Adiseshiah

Critically examining the present state of Indian agriculture, the author feels that agricultural policies, backed by adequate investment, must aim at increasing yields as well as agricultural exports, particularly in new areas. Also, special programmes be formulated to restructure the land reforms policy with a view to correcting the distributional imbalances, he opines.

THE neglect of the agriculture sector is glaring in the economic reforms policy set forth by the government, when it took office in June 1991. The new economic policy which was then set forth in bits and pieces over a period of 6 months covered all aspects of the economy except agriculture—delicensing and deregulating of several industries, the exchange rate changes beginning with de-evaluation by some 18 per cent and going on to a dual exchange rate and finally a unified exchange rate with full convertibility, a 5-year export import policy (1992-97), continuous monitoring of the annual rate of inflation every month, control of the supply of money as a key anti-inflationary element, plans for financial sector reform and the building up of foreign exchange reserves. In all this flurry of economic reforms, it will be noted that no reference has been made to the major sector of both development and employment of the economy which is agriculture.

This neglect of agriculture goes back to the early days of the country's Independence. The second Five Year Plan inspired and pioneered by Mahalanobis provided a new policy impetus to industry, leaving agriculture aside. It introduced the import substituting development policy (neglecting agriculture), which has continued in force till recently.

This neglect of agriculture has been opposed from time to time but such opposition has not resulted in any programme or positive action. In the last three years there have been proposals made in this regard such as setting aside a certain percentage (about 50 per cent) of plan outlays and investments for agriculture, restructuring and intensifying land reforms, improving the credit net work for agriculture and finally drafting an agricultural policy, which proposal has now lasted for over three years with no results.

Bright Spots

There have been some bright spots in this rather bleak picture with regard to agriculture. For one thing the Government of India has been conducting comprehensive agriculture censuses and using the data so obtained in planning and policy formulations and in shaping the programmes set forth by the National Commission on Agriculture. It is the census which has helped to define the Operational Holdings as against the Ownership Holdings to form a basic unit of decision making in all agricultural development programmes We have now a clearer idea of the rate of quinquennial increase of operational holdings, particularly in the case of marginal, small and semi-medium holdings Marginal holdings account for 58 per cent of all holdings which is around 16 per cent of the total operated area The share of large and medium holdings cover about 1/10th of the total number of holdings and accounts for 48 7 per cent of the operated area

The VIII Plan has set forth as one of its objectives "the growth and diversification of agriculture to achieve self sufficiency in food and generate a surplus for exports" This is embodied in annual plans, even prior to the start of the VIII Plan, whose start did not begin well A somewhat erratic south west monsoon in 1991-92 led to a decline in foodgrains production to 167 1 million tonnes from 174.4 million tonnes in the previous year. Not only was rice and wheat production affected, there was also a substantial decline in producton of coarse cereals and pulses Oil seeds yield also fell, but

sugar cane and cotton recorded good production levels.

In over all terms, whether there has been a trend on increase or deceleration in agricultural production is still under debate. There are two issues involved here both of a methodological nature First, what exactly is the Green Revolution period? While there is agreement that 1967-68 is the start of the post-Green Revolution period, as the two preceding years which follow the pre-Green Revolution phase were drought years, there is also the view that as post-Green Revolution period include about 8 years of varying forms of drought, the increase in the HYV area which is a mark of the post-Green Revolution really should be located in 1969-70 This is a complex issue which needs detailed investigation to ascertain whether the trend deceleration mode has been reversed A second problem here relates to the choice of the trend function used to compute the growth rate Here again there is a widely accepted system of computing the growth rates on apriori grounds In this regard, particularly the fact that benefits from the new technology have been largely limited to wheat needs to be taken into account Rice has recently

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begun an accelerated growth, but even so it was only 3.3 per cent on the average in the 80s as against 5 per cent per annum in the case of wheat What is needed here is to work out the optimal cropping mix as between wheat and rice.

The 1993-94 Budget

The budget for 1993-94 is somewhat encouraging Its major plus point is that there is some real provision for agriculture which was completely neglected as we have seen in the new economic reforms programme. Now agriculture has been given a fillip through NABARD, where the RBI enhances the general line of credit to it by Rs. 400 crore to finance short term agricultural operations during the rabi season. Related plus points is the new emphasis on rural development which received an increased allocation of over Rs. 5000 crore which is a sharp step up of over 60 per cent compared to the provision of the previous year

Further the national conference on agriculture in mid-April 1993 placed the foodgrain production during 1992-93 at 180 million tonnes, including particularly the marked increase in coarse cereals which attained 30 5 million tonnes against the target of 28 5 million tonnes. Non-foodgrain production is also projected to increase by 2 9 per cent which along with the 4.6 per cent increase in foodgrain production involves a 3 9 per cent increase in total agricultural output. Exports of agricultural commodities during 1992-93 increased by 23 per cent over the previous year's, with major contributions from rice, oil seeds extraction, marine products and vegetables. It is in the area of aquaculture, pisciculture and processed fruits that there is need for further exports.

Procurement Prospects

In the first five weeks of the current rabi season, April-June procurement has exceeded that of the entire last season. During April alone wheat procurement amounted to 4.15 million tonnes compared to 3.09 million tonnes in April 1992 and 2.79 million tonnes in April 1991. Thus the rabi target of 10 million tonnes this year is likely to be attained and perhaps, exceeded.

This happy procurement outcome however, is, in large part the result of the procurement prices policy which has pushed up procurement prices to more than Rs. 55 per quintal compared to that of last year. This is a serious inflationary element in an otherwise positive picture.

The hope for agriculture not contributing seriously to inflation is

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the fact that the prevailing market prices of wheat are lower than the government announced procurement prices The long term problem faced by agriculture, however, is the need to increase steadily investments and productivity of both land and labour in order to keep food production and agriculture generally on a rising curve It may be noted that while agricultural outlays are increasing in every year of the Plan, capital formation in agriculture is however declining The puzzle is, how the total resources flow to agriculture can increase substantially on the one hand, while agricultural investments are declining on the other. The answer to this puzzle is found in that the recurring expenditures on various inputs subsidies as for example on electricity, fertiliser, irrigation, and credit have been rising inexorably. Further the loan waivers and low record of recovery of agricultural advances have also eaten into capital formation. There is, further, a rather urgent need to reduce subsidies and allocate the saved resources for investment in irrigation systems which will result in increased yields.

Distributional Effect

There are two somewhat distur-

bing indications of the effect of our agricultural development on distribution.

First, the recently updated World Bank Handbook on Poverty (March 1993) shows not only that our poverty problem continues to be massive, but also that our subsidies to agriculture amounting to Rs 13,500 crore in 1989-90 are on the increase Of course these subsidies are peanuts compared to the subsidies that American farmers receive from their government or French farmers receive from the Community. But the disturbing trend reported by the World Bank is that the large part of our subsidies go to the wealthier and agriculturally advanced regions, and to larger farmers and so have not been an effective anti-poverty instrument. Punjab for instance received Rs. 1027 per hectare on an average in 1980-87 compared with the All India average of Rs 511 per hectare. This additional flow to the wealthier regions also apply to Haryana, Western UP, Tamil Nadu and Andhra Pradesh, whose per hectare benefits are above the national average. Similarly, our larger and wealthier farmers who have access to irrigation, ground water and credit and could use higher levels of fertilisers, receive the greater proportion of subsidies. This means that our agriculture over the past decade has worsened our distribution problems.

The second disparity is that though we have attained self-sufficiency at the national level in terms of foodgrain production, this self-sufficiency is not in terms of meeting the nutritional needs of our vast and growing population, but only in the sense of meeting the effective market demand for foodgrains which is of course limited by the restricted purchasing power of the poor majority[1] There is an uneven regional and spatial distribution imbalance Apart from the neglect of the major part of our gross cropped area—the 70 per cent rainfed area—there is a growing 'index of disparity' between the high per capita production of the topmost States at a little over 25 for the triennuim 1989-92 and those of the vast majority of States which are well below the national average Seven of these States have recorded absolute decline in the early 90s compared to the 80s,—Tamil Nadu (-2.7), Andhra Pradesh (-3.7), Maharashtra (-12 5), Karnataka (-14), Jammu & Kashmir (-15.8) apart from the special case of Kerala and Gujarat at (-27 3 and -20.8 respectively) It is necessary for agricultural procurement and policies backed by agricultural credit released by the RBI through NABARD for next year and the balance of the VIII Plan to concentrate on these seven lagging States, so that a certain minimum production could be attained by them vis-a-vis the All India Average for all States.

Here a number of crop and area specific programmes have been and can be undertaken to correct regional imbalances. This has resulted in a little more evenly spreading agricultural growth, as in the case of Eastern India, which has a low record of slow growth because of the low public expenditure on irrigation and its peculiar topological problems in managing surface irrigation in high rainfall areas Now regional deceleration is shifting to the southern areas of the country. There is a record of absolute stagnation of foodgrains production in South India during the 80s. Nineteen crops have registered a falling share of output for all southern and western States except Andhra Pradesh. Now there is need to identify rather fully the stagnation causes in southern and western India crop yields during the 80s to help evolve measures which will counter them

Future Pointers

Agricultural policies backed by continuously increasing investment must aim at increasing agricultural yields within the country in order to improve foodgrain consumption At the same time, the policies must increase rapidly the exports of agricultural commodities, particularly aquaculture, pisciculture and processed agricultural commodities, so that the targets for exports can be met and in a sense counter the slow down and stagnation in industrial exports. It is in these new agriculture areas that investment needs to be channeled and directed

Here the prognosis for the future are somewhat staggering The Planning, Commission's medium term projection for foodgrains is 208 million tonnes in 1997, 240 million tonnes in 2001 and 283 million tonnes in 2007. This calls for a rather

sharp annual increase in foodgrains production of around 3.5 per cent per annum for the remaining years of this century. If agricultural prices continue to rise at the rate above the general prices level as they have been doing in the 80s, the target production growth of 3 5 per cent could be attained along with the 4 per cent value addition in agriculture during the 90s. In other words there will have to be continuous vigilance to avoid the production trends involving deficit in the cereals market at the end of the century

Similar considerations apply probably little more strongly to pulses and oil seeds The VIII Plan estimates, oil seeds requirements at 23 million tonnes in 1997 and 37 million tonnes in 2007, calling for a high growth rate of 5 per cent per annum Does this mean diverting some part of the crop area from cereals to cash crops like oil seeds, sugarcane and cotton? Rather it will be non-optimum and so undesirable. There is also the problem of reconciling the objective of increased production in terms of self-sufficiency with the welfare objective in terms of equity It is important that macro economic policy measures help agriculture attain these important, though somewhat conflicting objectives

But such increases in production, investment, productivity and yield will not by themselves correct the imbalances with regard to the distributional effects referred to earlier. For such corrections, there will have to be special programmes to restructure the land reforms policy, so that it becomes an integral part of the structural adjustment process, which it does not comprehend at present. Studies show that more often than not, farm size has an inverse relationship with farm productivity. This is generally true in Indian agriculture, which means that the land reform measures which are difficult to implement because they involve subsidies flowing to marginal, small and medium farmers, along side of some reduction in the current benefits flowing to the wealthier farmers, provide the justification from both the production as well as the equity point of view. Unless such structural adjustment measures in agriculture are taken head on, the distributional ill effects cannot be corrected and may even be worsened.

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SAVE AND ENRICH THE ENVIRONMENT

The time has come for all of us, the Government and the public, to get together, to let Nature restore itself by preventing pollution and environmental decay.

Today the scene is frightening. Forests are being denuded, lakes are filled up for development, villages are devastated, cities are over-built and the air we breathe is polluted with increase in Carbon Dioxide, Sulphur Dioxide, etc. Factories, Mining activities, Vehicles we travel in and the houses/layouts we live in are all contributing to this disaster in the making.

Government of Karnataka invites the Public to Co-operate with and assist Pollution Control Board, and Environmental Committees.

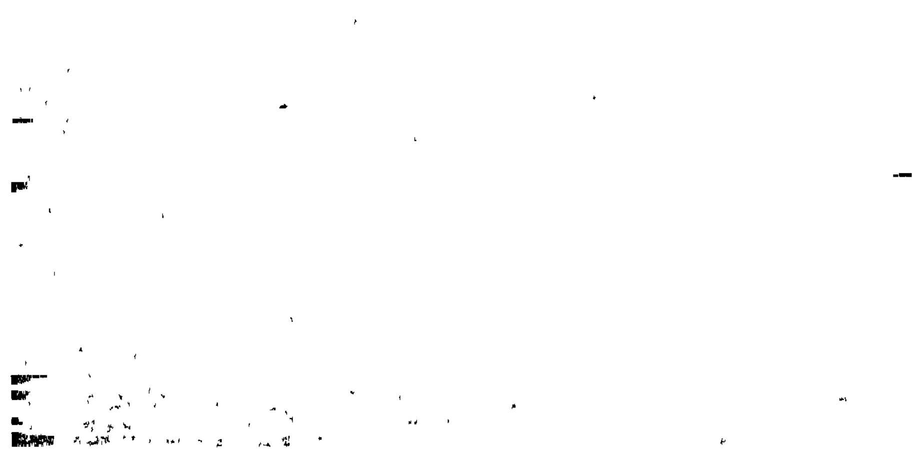
* Stop denudation of forests
* Help conservation of water
* Ensure proper pollution controls in Industries Manufacturing activities, Sewerage handling, & disposal units etc.
* Check vehicular emissions of injurious gases.

ONLY ONE EARTH—CARE AND SHARE

Karnataka Information

Agrarian Transformation: Interaction Between Tradition And Modernity

Prof. G.S. Bhalla



INDIA is one Asian country where peasant societies flourished for centuries. The agrarian structure evolved its own cultural ethos which it superimposed on the earlier heritage to produce varied and multi-dimensional traditions and customs. The first major shock to traditional India came not from the numerous invaders during the medieval period but from he British, in particular after England ompleted its industrial revolution. The imperialist attempt to integrate ndia with the metropole shook the ery foundations of Indian political conomy. The British rule, which isted nearly two centuries, introduced ır reaching changes including some rious distortions. The British rought to India, though inadvertntly, western science and rational ımanistic values thereby initiating process of modernisation. The cond major event on the road to odernisation was the Independence of India in 1947. The agrarian structure and mode and technology of production have undergone qualitative changes since Independence This notwithstanding, traditional semi-feudal mode of production persists in some areas. More important, the decadent and semi-fedual value system continues to be quite prevalent In the matter of agrarian transformation, India seems to be going through a transitional stage between tradition and modernity.

This paper is devoted to a brief analysis of these changes More specifically, it aims to describe the pattern of agrarian transformation in India and to analyse the interaction between tradition and modernity. The paper is divided into four parts. After the introduction, Section I briefly describes the main features of traditional peasant societies in India. This is followed in Section II by a discussion of changes in the agrarian structure during the British period. Section III discusses agrarian transformation during the post-Independence period and brings out the main features of interaction between tradition and modernity. Finally, a summary is given in Section IV

Section I

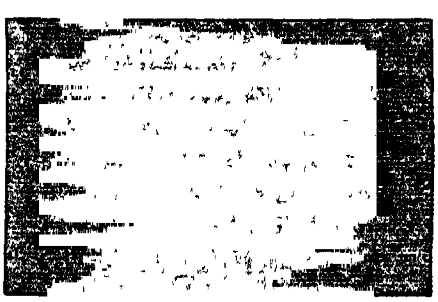
Indian peasant societies and the Indian village have been a subject of debate among scholars. It is not the purpose of this paper to investigate whether or not there existed an Asiatic mode of production and an idyllic Indian village as stated by Marx or to define the nature of feudalism that existed in India as distinct from the one prevailing in the medieval Europe. The purpose here is to bring out the main features of the peasant society in India during the medieval period before the

British rulers came to this country. This discussion is divided into two parts, namely, the technology of production and the relations of production.

Technology Of Production

(a) Medieval Technology

The first notable feature of medieval Indian agrarian society was its low level of technology. Farming communitites in India had, through ages of experience, evolved farming systems that conformed with the agro-climatic conditions and developed area specific technologies. Whereas,they specialised in the production of sturdy hard type of crops like wheat and coarse cereals in the rainfed areas, they evolved and grew paddy and other water intensive crops in the river valleys and deltaic coastal regions. Farming communities developed indigenous system of disaster management against both drought and floods. These human ingenuities notwithstanding, the technology of production remained more or less stagnant for thousands of years. According to Marx, the most important reason for technological stagnation was the perpetuation of self-sufficient village economy.



The self-sufficient village existed and continued to exist unmindful of the winds of change and the change of rulers.

(b) Land Productivity and Population Pressure:

An interesting feature in India, as perhaps in the whole of Asia,was the balancing of population with the level of land yields determined by the technology of crop production prevailing in various parts of the country. Areas with high land productivity were also characterized by higher population pressure. This was typical of river valleys as well as of deltaic regions. On the other hand, the semi-arid regions in the north western part of India were characterized by low pressure of population. Population adjustments came about through the mechanism of migration and natural disasters. The consequence of it all was that there existed a near constancy of per worker output almost throughout the country. There operated, as Ishikawa suggests, a balancing mechanism whereby the higher productivity in land was counter-balanced by higher population pressure and vice-versa.

Another important implication of this type of technology was a sort of adjustment of total population with growth of agricultural output. Since the production did not increase at a rapid rate because the forces of production were rather constrained and the technology stagnant, population increases were also very limited. Balancing was also brought about through the cruel processes of nature. Floods, famines and other disasters took a heavy toll of human lives along with innumerable diseases for which few cures existed. Hence, the technology along with production relations determined the total limits of output and population dependent on it, and was a determinant of the living conditions of peasantry during this period.

Production Relations

Before the advent of the British rule, India was essentially an agricultural economy with local handicraft, service and trading activities being directly linked to agriculture A small urban structure was superimposed on a predominantly rural society and this was mainly supported by the rulers and the court. With regard to the nature of production relations in agriculture, there appears to be no unanimity among scholars. At the one extreme Marx believed that unlike Europe where feudalism reigned supreme, the Indian rural society was characterised by Asiatic mode of production. According to Marx, the most important features of Indian village in the Asiatic mode were two: *the common ownership* and operation of land and property and the unalterable division of labour defined by the caste system. Several scholars have rejected Marx's views about Asiatic mode and believe that although quite different from the European type, the Indian agrarian structure was also characterised by its own version of feudalism

Some of the main features of agrarian production relations during the pre-British period on which there is a general consensus are briefly discussed below:

(i) Land Ownership

Whereas theoretically all land belonged to the King, in actual practice the ownership of land vested with a certain sub-caste of cultivating peasantry In villages covered by the *Jagirdari* system the *Jagirdar* enjoyed superior tenancy rights. The cultivators were required to pay a proportion—between one half to one third—of their net output as rent to the state In some cases cultivators also had to pay rent to the superior intermediaries. Forests and uncultivable lands were treated as common property of the village. The common property rights were generally exercised by all the inhabitants of the village including the economically backward sections.

Although land transactions were generally inalienable, there did exist a sort of private property in land and *de facto* ownership vested in the members of cultivating community. Because of differences in the number of surviving males, the distribution of land had also become quite uneven over time. Many cultivating practices were common, but all land was not necessarily cultivated commonly.

(ii) Agriculture And Handicrafts

In most rural societies, handicrafts provided supplementary income and occupation to working population. The existence of handicrafts enabled the working people to engage themselves throughout the year. This also imparted a certain degree of self-sufficiency to the village and therefore made its perpetuation simpler.

(iii) Unalterable Division of Labour

The Indian rural society was characterised by well defined division of labour codified by the caste system This division of labour imposed on the lower caste people menial and often degrading tasks The areas dominated by non-Hindus

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i.e. the Muslims, or the Christians, also followed a division of labour on caste lines. The caste system denied basic human dignity and rights to lower castes and untouchables leading to extreme economic and social exploitation. The rigors of the caste system made the Indian village a highly tyrannical society.

In general payments made by the cultivators to landless labour (generally the scheduled castes) as also the functionaries like carpenter, goldsmith, barber, brahman etc. were based on *Jajmani* system. The payment for services was in kind and in some cases a certain fixed proportion of output Because of this, to a great extent, the prosperity of all the inhabitants depended on whether the crop was good or bad. This notwithstanding, the distribution of the product was very unequal. It is also to be noted that the landlords i.e. the *talukdars* or the *subedars* or the king at the central court, were getting as high as one fourth to one half the of the produce by way of rent By any standards the exactions by the state through rent were extremely high.

The exploitation took place at two levels At one level the cultivators were directly exploited since a part of their produce was appropriated by the state and its agents At a second level, the higher caste cultivators exploited the retainers, in particular the lower caste landless labour through *Jajmani* system

Section II

British Period

Of all the foreign rulers, the British had the most profound impact on the Indian economy and society This is primarily because the British rule came to India when industrial revolution was about to usher in in England Further, unlike many others who invaded India the Britishers did not come to stay and make India their new home They came to rule, to exploit, to extract as much wealth as possible

According to Rajni Palme Dutt, several methods were employed by the Britishers to destroy the Indian economy These included the East India Company's plunder during the course of the seventeenth and the eighteenth centuries, the colonial power's neglect of irrigation and public works which has been maintained under the previous governments since time immemorial; the introduction of the land system which allowed private property in land with sale and alienation and encouraged it through commercialisation of agriculture; the direct prohibition or heavy duties on the import of Indian manufactures first into England and later also to Europe.

The decisive wrecking of Indian economic structure took place only after 1813 with the onset of the industrial revolution in England when conscious attempts were made to integrate the Indian economy with the imperialist economy by making it

> **The decisive wrecking of Indian economic structure took place only after 1813 with the onset of the Industrial Revolution in England when conscious attempts were made to integrate the Indian economy with the imperialist economy by making it an exporter of raw materials and a market for its finished products.**

an exporter of raw materials and a market for its finished products. The invasion of cheap English industrial manufactures in the Indian market was disastrous for the Indian manufactures and Indian handicrafts, especially the hand woven textiles and handicrafts of Dhaka and other towns. Urban centres dependent on manufacturing and handicrafts, became bankrupt and the weavers had perforce to move to the countryside thereby breaking the organic relationship between agriculture and industry and increasing unduly the pressure on land in India.

Regenerating Role

It is not possible to meaningfully integrate a colony with the metropolitan economy without making improvements in the raw material export sector, may it be agriculture, mining or other extractive industry. This in turn could only be done

through application of science and technology. For sustaining colonial relations, it was necessary to develop railways, roads and irrigation system. Further it was also necessary to build, howsoever reluctantly and sparingly, an educated Indian class "..imbued with European science".

Marx was able to clearly perceive that the introduction of new scientific mode in various fields is bound to bring about a historic change in India—not only was it going to destroy the basic fabric of India's economy and its archaic and outmoded social organisation—it was also ultimately bound to play a regenerating role by laying the foundations of an industrial mode of production and foster a more rational and scientific outlook. According to Marx "..whatever may have been the crimes of England, she was the unconscious tool of history in bringing out that revolution".

The centre-periphery school is critical of this view of Marx According to them instead of playing a regenerating role, the colonial mode of production has created structures that are responsible for continuing underdevelopment of India. It is our considered view that whereas many structures were deliberately distorted by the British rulers, some of the positive impacts of British rule cannot be ignored

The British undertook fairly large investment in irrigation and by 1920's had created a reasonable network of canal irrigation in Punjab, Sind and Uttar Pradesh and had successfully revived canal irrigation in the south.

The main changes brought about in India during the British period that have a direct bearing on agrarian transformation are now discussed under two headings. (i) changes in the institutional structure, and (ii) the technological upgradation of agriculture.

(i) Changes in the Institutional Structure

In formal terms three types of land settlements prevailed during the British period. These were the *Zamindari, i.e.* in the permanent settlement, the *Ryotwari* and the *Mahalwari*. The permanent settlement was deliberately introduced by the British rulers in the Bengal Presidency in 1773. In *Zamindari* areas absentee landlords were given the right to collect land revenue. It was believed that this newly created class of landlords would initiate modern farming practices and regenerate agriculture. In actual practice, the landlords impoverished the cultivators through exorbitant rents and lived a luxurious life in towns Because of numerous defaults on the part of tenants, the landlords increasingly acquired title to land Intermediary tenures became most prevalent, leasing and sub-leasing of land were commonly practised, and the tenants had hardly any defined rights The British did not impose this type of settlement in the rest of India after it came under their rule Instead, both in the south and north western parts of India, the then prevailing land settlements were preserved Under the *ryotwari* and *mahalwari* areas, the cultivating sections of the village community had direct land rights and, in theory, intermediary tenure did not obtain But even there leasing-in and leasing-out of land took place on a large scale as land passed into the hands of non-cultivators due to indebtedness and other reasons In the princely states of India, by and large, landlordism existed in its naked form with all sorts of lease arrangements and tenants had no defined rights. The British introduced and perpetuated most archaic system of land relations for political reasons Vested interests created in land provided very powerful support to the British *Raj*. The existence of absentee ownerwhip, occupancy tenancy, sub-infeudation, extreme inequality in land ownership and increasing indebtedness created not only large scale impoverishment of the peasantry but acted as a formidable barrier to the regeneration of agriculture in the country.

It was only after the Independence that a planned attempt was made to bring about agrarian transformation in India with a view to improving the lot of the peasantry.

(ii) Technological Change

The second change that took place during the British period relates to a few changes in technology of production in agriculture Some of the technological upgradation through irrigation came primarily as a result of belated response to frequent famines during the late nineteenth and early twentieth century. The British undertook fairly large investment in irrigation and by 1920's had created a reasonable network of canal irrigation in Punjab, Sind and Uttar Pradesh and had successfully revived canal irrigation in the south By 1924, nearly 24 per cent of net sown area in India was irrigated, but most of it was concentrated in the north-west of India and in the south.

Other aspect of technological development was setting up of the Royal Council of Agriculture Research in the beginning of the 20th century. Some agricultural universities were instituted and research was encouraged. Attempts were also made to develop scientific system of research and development by gradually evolving better quality seeds, by importing new species and so on It may be added that because of lack of adequate investment, achievements were limited mostly to commercial crops This notwithstanding, it was

during the British period that the foundations for research and scientific development in agriculture were laid down.

To sum up, during the British period the self-sufficient character of Indian agriculture and Indian village underwent some important changes because of attempts of the Britishers to commercialise agriculture and to integrate it with the imperial economy. Changes came about because of investments in canal irrigation in the late nineteenth and early twentieth century. The introduction of scientific agriculture did make a beginning and had a visible impact in certain parts of India. These changes did not lead to much dynamism in agriculture because of the existence of outmoded and semi-feudal land relations Consequently, the growth performance of agriculture was rather dismal.

At the social plane, in spite of the introduction of elaborate legal system based on common law, the age old communal and caste biases and social oppression continued unabated due to lack of dynamism in rural economy. It was the national struggle for freedom that gradually imparted consciousness to the people for equality and human dignity. In this context, Gandhi's role and especially his work for the uplift of Harijans was of paramount importance. The rise of nationalism also strengthened the urge to seek caste, communal and regional identities.

The Indian agrarian structure was beset with numerous impediments and problems on the eve of Independence. The next section would be devoted to a discussion of agrarian transformation in India in the post-Independence period.

Section III

Post-Independence Period

It was only after the Independence that a planned attempt was made to bring about agrarian transformaton in India with a view to improving the lot of the peasantry. The policy makers adopted a two-fold strategy for regenerating agriculture. The first element of this strategy was to implement land reforms in order to remove the institutional bottlenecks to growth. The national leadership was committed to bringing about radical land reforms after Independence, since peasant movement constituted a part of the national movement and imparted immense strength to it. The second element of national policy was that large investments were undertaken in irrigation, power and other rural infrastructure. Positive agricultural price policy was also introduced as another important instrument of policy during the mid-sixties.

(a) Land Reforms

Broadly speaking, there were four bouts of land reform legislation in India after Independence The most important legislation dealing with abolition of absentee landlordism and introduction of tenancy reforms were enacted during the mid-fifties. The Acts imposing ceiling on land holdings and distribution of surplus land among landless and small holders were first passed during the mid-fifties and subsequently during the mid-sixties as also during the emergency as a part of the Twenty Point Programme.

An evaluation of the implementation of land reforms would suggest that the stated objectives were only partially realised. Land reforms were fairly successful with regard to the objective of abolition of intermediaries in most parts of India. As a result as many as 20 million tenants were brought in direct contact with the state and Rs. 670 crore worth of compensation was to be paid to the ex-intermediaries of which nearly half had been paid by the beginning of the Fifth Five Year Plan. It is, however, notable that in many parts of the country, the landlords with the connivance of the local bureaucracy were able to resume land for self-cultivation by ejecting a large number of tenants In states like Bihar, Orissa, Rajasthan, Madhya Pradesh and West Bengal, landlords managed to keep very large holding because of their power and influence. In general, the level of success of Zamindari abolition depended on the strength of the peasant movement. In spite of these failures, the legislation on abolition of intermediaries was fairly well implemented, except in the states mentioned above. One important consequence of the abolition of intermediaries was that the extent of tenancy declined considerably and self-cultivation became the dominant mode of production in most parts of India. At the All India level, percentage of area under tenancy declined from nearly one-fifth of total operated area in 1953-54 to one-tenth by 1960-61.

The legislation regarding imposition of ceilings on land holdings failed miserably due to loopholes in law and large scale connivance of the surplus farmers with revenue administration, lack of will power of

policy makers and relative weakness of the peasant movement. Consequently, the pattern of land distribution has remained extremely skewed and has not undergone any significant changes.

The land distribution was extremely skewed to begin with in early fifties (1953-54). Marginal and small cultivators with less than 2 hectares constituted 60 per cent of all cultivating households, but accounted for only 15.4 per cent of operated area. By 1981-82, the proportion of marginal and small farmers had increased to 75.3 per cent although the area under their cultivation now constitutes 28.1 per cent of total area. The phenomenal increase in the proportion of marginal and small farmers along with landless labour in the emerging agrarian structure in India has very serious and significant implications.

The legislation regarding security of tenure to the tenants and determination of fair rents has also remained more or less on paper except in Jammu & Kashmir, Kerala and now West Bengal. In actual practice, tenants hardly enjoy any security and it is the market forces that determine the terms of tenancy. With the emergence of self-cultivation the dominant mode of production in most parts of India, many of the institutional constraints have been removed and conditions created for the growth of agriculture albeit on capitalist lines.

(b) Nature of Growth

(i) The post-Independence period marks a turning point in the history of the development of Indian agriculture. This is clear from the fact that compared with a paltry rate of growth of less than 0.5 per cent per annum during the first half of this century, agricultural output rose at the unprecedented rate of 2.6 per cent annually during the post-Independence period. Though this growth rate falls considerably short of the needs of the economy because of accelerated population increase and rising per capita income, it does represent a major advance over the earlier historical record.

Broadly speaking two periods can be distinguished in the history of development during the post-Independence, characterised by two different strategies which were adopted for agricultural development. The first period roughly extened from 1951 to 1961. In this period the main thrust was to bring about institutional changes and land reforms and to expand the irrigation infrastructure. The benefits of development were sought to be spread all over the country through the community development programmes. Having weakened the power of semi-feudal landlords, an attempt was made to acquaint a large number of owner cultivators with better practices associated with irrigation. In this period agricultural output grew at an average compound rate of 3.1 per cent per annum and area increase accounted for nearly 58 per cent and yield increase, 42 per cent of the total growth of output.

In the second period which extended from 1960-61 onwards, the main emphasis was on increasing yields through the use of modern inputs and improved methods of production in selected parts of the country through Intensive Area Development Programmes. In this period, the role of technology as a major input in agriculture was accorded explicit recognition. To begin with, the new technology failed to make much impact and the agricultural situation deteriorated considerably during the early sixties and consequently the country had to import large quantities of foodgrains. The culmination of new strategy in agriculture came about only in the mid-sixties, when the green revolution technology was successfully introduced. Although initially confined to wheat in a few north-western states, the new technology gradually spread to other crops and new areas. The new strategy became successful as a consequence of large scale investments in irrigation and in scientific research. Further, the introduction of a positive price policy during the mid-sixties as a result of the creation of Agricultural Prices Commission, provided the necessary incentive to the farmers to adopt new technology on a large scale. Compared with a growth rate of 3.1 per cent during 1949-50 to 1964-65, agricultural output rose at a rate of 2.6 per cent during 1966-67 to 1984-85. During this period, the contribution of productivity increase to total output growth rose to about 75 per cent compared with only 43 per cent during the earlier period while that of area increase declined from 58 per cent to only 25 per cent.

(ii) The pattern of agricultural development has been characterised by marked regional variations in the rate of growth recorded in various parts of the country. The north-

western States of Punjab, Haryana and U.P. have consistently recorded high rates of growth. In addition during seventies, a fairly high rate of growth has been recorded by Andhra Pradesh. Interestingly, among the Central States whereas, Gujarat and Maharashtra have improved their performance during the seventies, growth rates of Rajasthan and Madhya Pradesh have decelerated Among the southern States, except for Andhra Pradesh which has recorded a growth rate of 4.32 per cent, the other states have done poorly. Specially unsatisfactory has been the performance of Tamil Nadu and that of Kerala. But it is the eastern states of India which continue to be the Achilles' heel of Indian agriculture It is clear that except for Assam, the performance of all the other eastern states namely Orissa, Bihar, and West Bengal, has been extremely poor. In general, both infrastructural investement in irrigation and water managements as well as the institutional constraints have tended to contribute to the slow growth of agriculture in these States

State-wise variations in growth rates have had a differential impact on the living conditions of the peasantry in different regions of India. In the fast growing states, along with output increased labour productivity has recorded a rapid growth. On the other hand, in the eastern parts both rural population as well as work force have often exceeded the rate of growth of agricultural output It is in the areas where the growth of male work force exceeds that of growth of output that a process of involution has taken place and there are reasons to believe that large scale poverty and destitution exists

(iii) The second major characteristics of the pattern of agriculture growth is the perpetuation of interpersonal inequality amongst various categories of cultivators. Over a period of time, the average size of holding has declined quite considerably from 3.1 hectares per household in 1953-54 to only 1.7 hectares per household in 1981-82. In addition, one also discovers that for India as a whole, the percentage of marginal and small cultivators has increased from 60 per cent in 1953-54 to as much as 75.3 per cent by 1981-82. The consequence of predominance of marginal and small farmers amongst the cultivating households is that even in the agriculturally developed regions, because of limited assests they have been able to benefit from the new technology to only a limited extent. A very large percentage of them suffer from poverty and destitution particularly in the agriculturally stagnant areas.

(iv) Differing political processes have emerged in the developed and the underdeveloped parts of India. In the richer agricultural regions, increased incomes have helped to enlarge demand for industrial products which has a favourable impact on industrialisation Quite often because of infrastructual, administrative and cultural constraints the process of industrialisation and diversification has failed to take off even in these areas. On the political side, the power and the influence of the richer farmers has increased tremendously. Simultaneously, the bargaining power of the landless labourers has also improved as a consequence of greater demand for labour. The emergence of the rural proletariat as an organised force and as a class in the Marxian sense is bound to have a far reaching effect on the institutional framework in the countryside.

To begin with, these farmers pioneered the adoption of new technology by investing in a very big way in agriculture. This investment was partly financed out of savings and partly from borrowings from government agencies. So, to some extent, the big increase in agricultural output can be attributed to their initiative and enterprise. But, having once acquired the essential assets, the rate of investment has tended to decelerate. Nor are they attracted to investing in non-agricultural industrial activities about which they have little knowledge. The surplus is being diverted to conspicuous consumption, luxurious houses, extravagant marriages and social ceremonies etc.

At the same time having become politically powerful, they resist any attempt at mobilisation of surplus by the state through increase in rural taxation or in the supply prices of highly subsidised power, fertilisers and irrigation They also exert immense pressure for getting higher procurement prices for major crops The emerging kulak power is gradually becoming a barrier to the process of further capital accumulation.

As expected, with agriculture developing on capitalist lines the major contradiction in these parts is that between agricultural labourers and capitalist farmers Further, since the marginal and small farmers have also benefited from new technology, there does not exist any political differentiation between the small and the rich peasants in spite of large and increasing differences in the pattern of sharing of benefits

On the other hand, in the rest of India, where agriculture is still backward, the condition of the mass of small and marginal farmers and agricultural labourers continues to be pitiable and the lack of dynamism has tended to keep the total market limited because of stagnating agriculture. In these areas, it has not been possible to lay a basis for initiating processes of industrialisation

In many of these parts the character of contradictions is quite different, because the land reforms that were carried through have failed to abolish the intermediaries. Con-

sequently, there exist contradictions between the occupancy tenants and the landlords. Superimposed on these are caste conflicts between the landless Scheduled Castes, the emerging self-cultivating middle castes and the traditional *brahman* and *thakur* landlords.

These conflicting and contradictory processes constitute the political economy of Indian agriculture at its present stage of development.

Section IV

Summing Up

Nowhere has the interaction between modernity and tradition led to such dramatic conflicts and such complex system of accommodation and compromises as in the process of agrarian transformation of India.

Agriculture in India has been influenced a great deal by modern technology. The irrigation technology was quite well known to Indian cultivators and there was a large expansion in irrigated area during the British period as a consequence of the ruler's belated response to frequent famines. This led to increase in yields, in particular, of commercial crops. It was also during the British period that the foundations of scientific knowledge were laid with the setting up of the Royal Council of Agricultural Research in the early twentieth century and opening up of several agricultural colleges These institutions did pioneering work in the area of developing better quality seeds and propagating scientific methods of crop rotation and cultivation

These innovations, however, did not have far-reaching and widespread effect. This is because, the colonial government did not make adequate investments in agricultural research. Whatsoever research was done mainly related to commercial crops and was confined to irrigated areas. These infrastructural and technological factors were no doubt responsible for the low growth of agriculture. But it was the institutional barriers that were the main cause of lack of dynamism in agriculture and constrained the spread of new technology. The most inhibitive among these was the widespread prevalence of tenancy, stranglehold of absentee landlordism and mounting indebtedness. The second was the relative smallness of irrigated area, dominance of small serfs who lacked resources for investment and inadequacy of market and credit infrastructure.

With the coming of Independence, a serious attempt was made to overcome these problems. The land reforms—though half-hearted—did succeed in fair measure in abolishing intermediaries except in some parts of India. However, these failed to bring about equal distribution of land ownership as the Ceiling Acts were not implemented. Nevertheless, with the abolition of intermediaries, one of the basic barriers to agricultural development had been removed. However, because of skewed land distribution, foundation were also laid for unequal capitalist development in agriculture. The second plank of policy for overcoming the technological bottlenecks was large scale investment undertaken in irrigation, power and other infrastructure. To some extent this was a continuation of what the Britishers had started, but thanks to large Plan investments, there was a qualitative increase in rural infrastructure, in particular, in the availability of power as well as in total area irrigated. The third plank of the policy makers for overcoming the bottlenecks was investment in technology on a very large scale. The policy makers built up on a small research infrastructure created by Britishers and expanded it through large efforts and investments. Indian Council of Agriculture Research (renamed from the Royal Council of Agriculture Research) was given a high status and a large number of agricultural universities were opened. Meaningful research was undertaken with respect to the development of new varieties of seeds, as well as measures for resisting crop diseases. It is to be emphasised that qualitative increase in infrastructure as well as qualitative changes in technology were concentrated in the irrigated areas. These investments started paying off as a consequence of the successful introduction of new seed fertilizer technologies during the mid-sixties. Another important plank of policy was the creation of favourable price climate through the setting up of the Agricultural Prices Commission in 1965. Price policy in conjunction with new technology resulted in widespread increases in output. But the benefits of this development were confined only to a few north-western states. Over a period of time there has been some spread of technology both to the eastern part as well as towards the south. Nevertheless, it is the northern western states that new technology has resulted in substantial increases in incomes and levels of living of cultivators. The continuing wide regional disparities along with large interpersonal inequalities constitute the basic features of capitalistic developmet in agriculture particularly since the mid-sixties.

The interaction between tradition and modernity is to be seen in the context of both the basic structure defined by the mode of production, as well as the super structure defined in terms of gradual evolution of new value system Regarding the mode of production, it can be stated that although capitalist mode of production is ascendant, there still exist remnants of old semi-fedual relations in some parts of the country. As is to be expected, the rural tensions and class struggles in these parts have become quite acute. The second feature of the development, as noted earlier, is the inability of modern

technology to percolate to all the regions of the country. The regional differences in agricultural development have had serious implications In general, meaningful dent has made on rural poverty in areas where agriculture development has been rapid and consistent On the other hand, in large parts of India where this transformations has not taken place, a considerable percentage of rural population continues to live below the poverty line

It is not within the scope of this paper to spell out the sociological aspects of interaction between tradition and modernity Nevertheless, one has to agree that after Independence, India is one of the few countries which has adopted western liberal democracy and professes to be building a secular, democratic and egalitarian (socialist) society Most of these concepts happen to be alien to the inherited traditional system of power and governance in India Under thousands of years of semi-feudalism, in spite of its sublime achievements in the fields of art, culture, architecture and philosophy, India was essentially a highly undemocratic, and despotic society. Although, there was a tradition of village panchayats but their role and their powers were extremely limited and these too were circumscribed by caste consideration. It has taken a long time for India to learn the lessons of adult franchise. These are problems. The old traditional concepts like caste and religion still wield considerable power in influencing elections. Quite often traditional tribal and caste loyalties play a reactionary role and come up in the way of the basic norms of democratic behaviour

In the sphere of other values also there are serious conflicts arising because of the interaction between tradition and modernity Whereas the society was basically patriarchal for ages, women are asserting for equal rights This creates lots of tensions. The same is true about scheduled castes and scheduled tribes Whereas the Constitution has given them equal rights but quite often they are not only being exploited but are also being forced to continue to live a degraded life.

These problems and tensions are natural concomitant of interaction between tradition and modernity. But to quite same extent these are exacerbated because of the decadent outlook of many among the ruling elite The picture seems disturbing when one looks at the formidable forces of fundamentalism, religious bigotry, communalism, reactionary social outlook etc. On the other hand, one must not underestimate the potential force of the emerging new consciousness among masses, specially the youth, the workers, the scheduled castes and women for building up a new society which is based on basic principles of equal rights, democracy and egalitarianism.

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even more essential than in the case of green revolution technology. Since unfavourable environments account for bulk of the area under crops in India, it may be desirable, from the point of view of growth as well as equity, to invest in the generation of new technologies suited to these environments. The possibilities opened up by modern biotechnologies raise the profitability of such investment in agricultural research as the gap between the actual and potential yields is quite high in unfavourable areas like eastern India.

Because of the wide range of options opened up by biotechnologies, there is greater scope for economists and social scientists to contribute towards the evolution of appropriate technologies. Economists have so far been engaged mainly in the *ex post* analyses relating to the consequences of the adoption of new seed-fertilizer technology. Their contribution towards the evolution of appropriate technologies in collaboration with agricultural scientists or at the policy-making level has been limited. It is, therefore, necessary to initiate collaborative ventures to bring together agricultural economists and agricultural scientists for the evolution of appropriate technologies and for shaping agricultural technology policy. ☐

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Indian Agriculture: Challenges Ahead

K. Rajan

INDIAN agriculture had been and is the mainstay of Indian economy This has to be seen not only in terms of contribution by agriculture sector to the gross domestic produce but also the number of people dependent upon agriculture and the role agriculture sector plays even in terms of industrialisation. Important segments of industries in the country are based on agriculture produce like textile industry, sugar industry or small/ village industries such as oil mills, dal mills, flour mills, bakeries etc

Indian agriculture has done reasonably well since Independence. The foodgrains production has increased by almost 350 per cent from a level of 50.83 million tonnes in 1950-51 to over 176 million tonnes in the year 1990-91. Similar increases in oilseeds, cotton and sugarcane have also been registered. This has enabled improvements in per capita availability of several of the agricultural commodities notwithstanding the large increase in the population. Another important feature of the development process has been that we have been able to build up some meausre of resilience in the Indian agriculture scenario as is evident from the fact that in the more recent years the drop in production in a drought year compared to the previous peak year in production has been much less steep than what used to be in the fifties and sixties No longer we are faced with widespread occurrence of famines, pestilence, disease epidemics caused by mal/ under nourishment as was the situation in early part of the century

Largely this is due to expansion of irrigation facilities which has now increased to 32% of the net sown area. Adoption of modern agricultural practices by significant number of farmers and a network of institutions created in the public, private and cooperative sectors to serve the needs of the farmers have also assisted in the process of agricultural growth

Challenges

Nevertheless, Indian agriculture faces several major challenges not only peculiar to the sector itself but also as a part of the overall economic situation. One should note that Indian agriculture economy is quite significantly integrated with other sectors of economy and does influence and gets influenced by other sectors of the economy It is no longer possible to look at agricultural economy as a water tight compartment which charts out an independent and parallel existence outside of the overall economic situation. This has been largely due to the agriculture markets in different parts becoming closely integrated with each other Modernisation of agriculture has also meant dependence on inputs not merely locally available but essentially products of industrial sector, such as the chemical industry, the automobile/ machine fabrication industry etc. In this process, agricultural growth in the country is not unique but follows more or less the same trends as have been witnessed in other parts of the world and especially the developed countries. Thus, while looking at challenges facing Indian agriculture, some of which may be unique to the sector itself, there are others which are more or less common to all other

economic activities.

Amongst the major challenges in terms of socio-economic development process in the country, the following could be considered as some of the key challenges:

Employment: Despite the progress made by the Indian economy, we are nowhere near solving our major problem of unemployment or the even more acute problem of under-employment. The mobility of Indian labour force compared to other countries is also far more restricted creating large imbalances in terms of shortages/surpluses of required manpower with the kind of skills which are essential for efficient agricultural operations. In any attempt at national welfare apart from food, clothing and shelter, a major element is the need to provide gainful employment to the large mass of individuals. Employment in a socio-economic occupation is not only critical from the point of view of maintaining harmony in society but also essential for development of individuals The challenge that we face today is whether the economy will grow at a pace and in a manner

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that creates employment opportunities to the multitudes There are several issues to be considered in this area. The need for the occupation being self-satisfying, enabling incomes or returns which will ensure improvement in standards of living, enable growth in one's occupation to become specialised and with opportunities for advancements, are important factors.

Growth: The second major challenge that the country faces is that the growth is not sufficiently high as would enable increased generation of wealth and through more equitable distribution ensure improved standards of living. With the population growing even in the eighties at well over 2.1% and unlikelihood of any dramatic drop in the next few years, the economy has to grow at an accelerated pace if the general welfare of the Indian population has to be ensured

Sustainability: Thirdly an important question that faces us today is whether the development process that we have chartered out is sustainable? The sustainability issue is very closely linked with efficiency with which we use natural resources. Any large scale wastage in the use of resources will not only hurt the present generation but far more importantly the generations to come Science and technology have, often in the past, produced answers to many of the problems facing mankind. The question that our society faces today is whether we are being spendthrift in the use of our natural resources and through necessary all round awareness can we avoid wastage and inefficient use. Efficiency of use has a multi dimensional focus Improved efficiency inherently aims at generating higher wealth for society from the levels of use of resources as presently followed or in other terms improved returns on investments. These have become extremely important considerations from the point of view of environmental preservation and maintenance of ecological balance These aspects need consideration not only for the economy as a whole but importantly for agriculture.

Demands

Often it is said that the advancements in science and technologies have made various societies of tl world come far closer to each oth and that the earth is increasing taking the shape of a global villag More and more life styles are tendir to become universal. Man's nee and aspirations are tending assume similarities. In this contex one should also note that it may l

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difficult to build a society which uniquely different from other societie The economical, the political, tl social philosophy of various societi seem to be converging to son standard or normative pattern Oft this results in developments whi may call for imports of goods ar services not only produced within tl country but for which demands tc get created and a State, one way the other, becomes obliged to cater the demands. This pre-supposes th the country would have the resourc to import what is not local produced or produced in insufficie quantities for meeting demands society Without a proper balan between exports and imports, serio problems of balance of payments a bound to arise. One should see tl integration of Indian economy wi the global economy and the thrust export in this light. All sectors of tl economy would be required subserve this important objecti and particularly the agriculture sect which has large export potential.

Indian agriculture like oth sectors of economy also faces ma of these challenges. Broadly one see these as:

i) Country's ability to food security;

ii) Capability to m

larger demands of agricultural commodities arising from increased population but also demands arising from improvements in incomes and meeting agricultural requirements of sections of society who may not have had access on account of low purchasing power in the past.

iii) Despite a significant contribution of the secondary and services sector in their contribution to the GDP, relative decline in population dependent upon agriculture has been far lower. The decline in proportion of the rural population as a proportion of the total has been only 17% from about 80 to 63%. The problems of unemployment and under-employment has, therefore, become even more acute in the rural areas. Large population dependent upon agriculture means that the growth of incomes on per capita basis in the rural areas may not have really matched the growth in per capita incomes in the other sectors This has large influence on access to several social amenities like education, health etc. Resultantly this is bound to give social tensions

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holdings. A large proportion of the farming community is forced to depend upon almost uneconomic size of holdings. Many of the small and marginal farmers often are not in a position to adopt the kind of technologies as would ensure high productivity and forced to depend upon casual wage earnings as a part of livelihood, even at the cost of conducting required agricultural operations on their own holdings. One attempt has been to see whether the small and marginal farmers are assisted to take higher value generating enterprises based on their limited land holdings such as through horticulture, animal husbandry etc. to improve their incomes. Secondly, we may have to consider the need for promoting minimum size of operational land holdings as would be economically viable. The challenge that we face is to consider and analyse carefully whether the philosophy which dictated what we did in the fifties are equally relevant even today or should the emphasis be on promoting agricultural growth *per se*.

(v) Another major challenge that faces Indian agriculture particularly in the nineties is the need to step up capital formation and investment in agriculture There has been relative stagnation in the eighties in investments. This is bound to affect our ability to improve production and productivity Public sector inevestments do catalyse, to some extent, the private sector investments in agriculture in agriculture. For example provision of irrigation facilities, in its wake, brings about investments on land development, thus improving the value of land stock held. Irrigation may also bring in its turn changes in cropping and farming systems requiring the farmers to invest in productive assets such as development of orchards, use of farm machinery setting up of dairy, poultry units etc. Another major aspect of investment is the issue whether surpluses generated in agriculture over the operational cost are large enough to enable investments on creation of assets. This would only be possible if agriculture enables farmer to obtain remunerative returns on the agricultural commodities he produces, ensuring a surplus for investments. Marketing arrangements must be developed to ensure that the farmers secure higher prices to enable higher returns on his efforts as well as investments on current and operational expenses. The other dimension of this problem is the need to reduce losses between the ex-farm production and quantities which finally reach the consumers. In many cases the losses are significantly high and particularly in case of perishable commodities. Improved marketing, post harvest handling facilities and processing are efforts in the direction of reduction of losses, resulting in higher value addition at primary producer's level as well as the consumer's prices being kept at reasonable level to create a right kind of demands for the commodities.

vi) Almost 65-70 per cent of agriculture lands are unirrigated and dependent on the rainfall. The challenge is for assisting the rainfed farmers to improve their economy by adoption of production systems as would not only be economically remunerative compared to the traditional cropping systems but also environmentally sustainable. The rainfed farmers' propensity to invest in improved technologies is low on account of risks involved in production failures arising from aberrant rainfall situation. Secondly being resource poor they do not adequately invest on means of production, given the limited use of capital assets for the conduct of agricultural operations in a mono cropping situation. Provision of custom hiring services to undertake timely agricultural operations is an extremely important felt need How could one ensure availability of services on custom hiring basis and how do we insulate, to the extent possible, the rainfed farmers from the risks, are important policy issues requiring appropriate measures to support the farmers

Realising Potential

The key to our facing many of these challenges really rests on how best we maximise productivity level with reference to scarce natural resources like land and water. Secondly the agricultural production systems whether based on seasonal, annual or perennial cropping systems or other farming systems such as animal husbandry, farm forestry, sericulture, fisheries etc. be so organised as would be conducive to maximising productivity and production in the light of different agro-climatic parameters in different areas. Subject to certain overall national objectives, efforts must be to promote such agricultural production system in each area as would assist in the realisation of potential that exists for production and income generation Different areas may specialise in different types of production systems with the primary focus of maximising returns to the farmers and being environmentally sustainable. Necessarily, therefore, this specialisation in the production systems may have to have the farmers as the focus of the planning process rather than any specific individual agricultural commodity.

Indian has vast diversity in terms of agro-climatic and soil conditions and cross regions/cross state comparisons by themselves may be inappropriate unless the basic factors influencing production are kept in view Even given these variations there is no denying the fact that except for one or two commodities, the present performance in the country does not compare favourably with those of many other agriculturally advanced countries growing or producing agricultural commodities in more or less similar agro-climatic conditions. Table 1 indicates the comparative performance of productivity of selected crops in India vis-a-vis what is being obtained in agriculturally advanced countries.

Yield Variation

There may be several valid factors as to why the Indian yields are lower than in many other countries To a large extent, the variations in yields could also be explained by the levels of technologies adopted within India vis-a-vis elsewhere. It is, of course, of interest to note that the Indian overall yields represent the yields across different states and by million of farmers. Within the country's agricultural scenario one may find that some states or the other may be doing far better than the national average. If one looks at the disaggregated figures of district and sub-district-wise yields, even in states which have fairly high yields, one does, in fact, find that certain sections of farming community may be achieving far more than the district/sub-district averages. Essentially the challenge lies in our ability to improve the yields in respect of different sections of farming community even within a given local area such as the blocks or even villages. Without every section of the farming community being enabled to adopt technology as will favour high yields, it cannot be expected that it would be possible to bring about substantial yield enhancements on an average basis, for the nation as a whole.

In meeting these challenges of large yield differences even within a given agro-climatic region/area, the following important issues need to be recognised in devising measures for substantial improvements:

i) Are the technologies being recommended suitable and appropriate for a given agro-climatic region and are these sufficiently location specific?

Table 1

Yields of Principal Crops

(Yield in kgs/ha)

Crop	Year	India	China	Japan	Indonesia	Asia	North America	South America	Europe	Africa	World
		Countries									
Rice	1979-81	1558	4244	5581	3527	2807	4397	1832	5132	1711	2757
	1989	2635	5500	6168	4247	3571	5150	2517	5080	1972	3488
	1990	2691	5728	6328	4319	3641	5075	2422	5237	1992	3557
Wheat	1979-81	1545	2047	3100	–	1702	2174	1315	3600	1087	1886
	1989	2244	3043	3468	-	2316	2112	1892	4605	1448	2399
	1990	2117	3179	3662	—	2356	2560	1724	4829	1554	2570
Total Pulses	1979-81	461	635	1254	882	626	962	520	1006	572	674
	1989	578	932	1555	1282	675	892	484	1964	571	809
	1990	553	956	1562	1299	728	978	516	2116	563	863
Groundnut	1979-81	838	1487	1854	1460	1022	2253	1511	2146	729	995
	1989	929	1821	1850	1436	1160	2427	1579	1789	810	1114
	1990	900	2127	2000	1463	1238	2048	1785	1676	811	1157
Rapeseed Mustard	1979-81	499	927	1692		691	1171	1066	2097	999	969
	1989	906	1089	2000	-	982	1076	1661	2784	1596	1318
	1990	826	1317	2000	-	1070	1274	1419	2760	1348	1409
Seed Cotton	1979-81	495	1613	—	717	1002	1624	638	2407	897	1252
	1989	766	2186	—	537	1442	1817	1098	2697	1021	1551
	1990	694	2395	-	543	1496	1918	1165	2476	962	1596
Potatoes	1979-81	12639	10888	26465	8701	11989	26521	9807	19224	8520	14167
	1989	15870	11067	29892	12975	13119	28554	12579	20961	9276	15290
	1990	15873	11588	29661	12308	13341	28743	12460	21195	8846	15098
Sugarcane	1979-81	5205	54170		104252	51973	58619	58428		63205	56566
	1989	66062	54003		80526	60321	67410	62727		59909	62671
	1990	64140	59897	-	69114	58930	64146	62322		60717	61329

Source. FAO Year Book of 1990.

ii) Is the extension machinery effective enough to carry the technology recommendations to multitudes of farmers?

iii) Technology generation outside of the public sector to be begining to grow as also extension efforts by the industry, voluntary agencies, farmers' organisations etc. Coordination needs to be brought about in the efforts of all the agencies in meeting farmers' requirements of technology and information support.

iv) Mere knowledge may be insufficient to motivate the farmers to accept the recommended technologies Several other constraints operate in farmer's being unable to translate the technology recommendations into field operations Some major factors which influence adoption, are (a) availability of physical inputs and services; (b) the resource base of farmers and availability of sufficient finances to procure and pay for inputs and services obtained from outside; and (c) adoption of technology recommendations may also be influenced by the kind of agrarian relationship that exists amongst those who cultivate the lands and the owners—the tillers propensity to make additional investments for improving the yields/productivity will be influenced by what he is able to get from the actual harvest.

In short one could say that it is only through an integrated measure of a policy/programme package that the challenges facing Indian agriculture can squarely be met. Emphasis on one aspect or the other such as extension, or marketing or efficient delivery of inputs and services or

agararian relationship may individually prove to be sub-optimal in realisation of our goal. Different measures influencing each other need to be worked out with rerefence to conditions prevailing in a given specific location, and so designed and implemented as would enable different sections of the farming community being assisted to overcome the constraints they face in overcoming problems of poor productivity and returns. on their investments and efforts. The challenges cannot be met through organisation of some campaigns or the other but will require efforts made after a continual evaluation and assessment of constraints, and modifying the policies and programmes to meet the farmers' need. These will have to be seen as essentially an ongoing process with each step consolidating measures previously taken towards the attainment of specific objectives

The author is Adviser, Planning Commission.

Land Reforms: Still A Relevant Issue

Dr. Rohini Nayyar

THE British period saw considerable changes in the pattern of land relations in rural India, with a growing differentiation among the class of peasantry. Instead of Zamindars and their serfs, there was an emergence of new classes in the rural areas, including money lenders-cum-landless, tenants and sub-tenants, share-croppers and an agricultural proletariat. This was the agrarian structure at the time of Independence.

The nationalist movement sought to accommodate all classes of people in its programme for economic development. It drew its support from the large mass of peasantry from the countryside. It was recognised that absentee landlordism had resulted in agricultural stagnation. The landlords were content with receiving rents, and did not reinvest in agriculture; the actual tillers of the land had neither the means nor the incentive to invest as they did not own the land. It was, therefore, realised that increases in agricultural output would only occur if the ownership of land was transferred to the actual cultivator. After Independence, the Government at the centre felt the pressures from opposing groups as land was concentrated in the hands of a few. The choice was either to redistribute land in favour of the actual cultivators or to induce the landlords to cultivate the land themselves, through hired labour, instead of renting it out to tenants and share-croppers. The course of action chosen was an intermediary one, with the objective of abolishing Zamindari and creating a class of owner cultivators from among the landlords class, as well as the upper strata of the peasantry, without radical redistribution of land, in favour of the rural poor.

One of the first steps taken by the government of Independent India was abolition of Zamindari. However, given that land reforms was a State subject under the Constitution, each State was required to enact legislation, with the objective of ending feudal exploitation. In most States this process took 4 to 5 years, which gave the landlords enough time to manoeuvre the records in their own favour. This led to widespread ejectment of tenants and the land belonging to the land owners was recorded in the name of each of their family member, as well as several fictitious names. Consequently, while the Zamindari abolition made it illegal for landlords to secure rent from their tenants, thereby eliminating the intermediaries, this did not really bring about any change in the ownership pattern of land holdings An important loophole was that land which was under personal cultivation i.e. 'sir' and 'Khudkasht' lands could not be appropriated because in respect of such land the landlord was not an intermediary. He was permitted to

cultivate this land through hired labour. Given that there was no governmental machinery to keep a watch on this, cultivation by leasing out of land continued to flourish. In some States where tenants acquired ownership rights, they had to pay compensation to the landlord, which varied from State to State. Thus, even in these cases, the conditions of the tenants did not improve perceptibly. In any case, Zamindari abolition did not concern itself with the condition of the poorest, namely the marginal farmers, the share-croppers and agricultural labourers.

Successive Five Year Plans have emphasised the need for land reforms. The emphasis in the first three Plans was on increased agricultural production and not on equity. Hence, there was no discussion of any ceiling on the ownership of land. Some States did enact such legislation but along with Zamindari Abolition Act by 1961 ceiling laws were in force in all States The level of ceiling varied from State to State. However, these laws were in practice totally ineffective as transfers, both legal and clandestine, took place on a massive scale. Recognising that little headway had been made in the direction of more equal distribution of land, this issue was raised again in 1970 After deliberations with State Governments in 1972, it was decided to reenact ceiling legislation, fixing a limit on the size of ownership holdings. Given the nature and provisions of the legislation there was considerable scope for evading the ceilings clauses For example: (i) 10 to 18 acres was limit of perennially irrigated land capable of yielding two crops a year: The concept of both sufficient irrigation as well as quality of land were subject to misrepresentation (ii) In the case of a single crop the ceiling was 27 acres; an individual could assert that he cultivated only one crop. (iii) Landlords being powerful, both politically and socially, they could make illegal transfers and continue to lease. (iv) In a household of more than 5 persons additional land was allowed for each extra member over 18; in the absence of birth registration minors claimed that they were over 18 and the family could thereby retain more land. (v) Compensation had to be paid, and for the very poor this was self defeating . To pay compensation money was borrowed from the landlord or money-lender and in the event of the non-payment the land lapsed back to them in settlement of the debt. These lacunae in the ceilings enactments resulted in the persistence of inequity in the pattern of landownership

Even today land reforms are a major issue of concern at the national level. A comprehensive land reforms policy is a prerequisite for agrarian

The landlords were content with receiving rents, and did not reinvest in agriculture; the actual tillers of the land had neither the means nor the incentive to invest as they did not own the land. It was, therefore, realised that increase in agricultural output would only occur if the ownership of land was transferred to the actual cultivator.

reforms and for agricultural development A land reforms package must consist of the following.

(a) Abolition of intermediaries and bringing tenants in direct contact with the government.

(b) Tenancy reforms with a view to providing security of tenure to actual cultivators of land against eviction.

(c) Redistribution of land by imposition of a ceiling on ownership holding.

(d) Consolidation of land holdings and

(e) Updating of land records.

Let us consider each in turn:

Abolition Of Intermediaries

It cannot be gainsaid that in the first decade after Independence considerable success was obtained in the abolition of intermediaries; it is estimated that about 20 million tenants benefitted from the abolition of Zamindari. However, the problem still persists, particularly in some States where absentee landlordism continues to flourish. Even though there has been a reduction in the number of very large land holders, the distribution of land holding still continues to be highly skewed. 'The concentration ratio as reflected in the Gini co-efficient was 0.72 in 1961-62 and after two decades it was still 0.71. This suggests that the inequity in the distribution of land stil persists.

Tenancy Reforms

Tenancy reforms were enacted in all States except Nagaland, Meghalaya and Mizoram They provide for conferment of ownership on the tenants by the State, execution of ownership by tenants on payment of reasonable compensation, security of tenure and fixation of rents However, the implementation of these laws has not been uniform.

West Bengal, Karnataka and Kerala have achieved more success. In West Bengal 14 lakh share-croppers have been recorded under 'Operation Barga'. In Karnataka, three lakh tenants were settled on 11 lakh acres of land by special 'land tribunals', set up for this purpose. In Kerala, through the tenants association applications of 24 lakh tenants for conferment of ownership were accepted. On the whole, the experience of tenancy reforms has been rather limited and the instance of oral or concealed tenancies are very high. This fact is borne out by the data on the distribution of operational holdings. While there was no

change in the concentration ratio of ownership holdings, the inequality in the distribution of operational holdings has worsened, with the Gini coefficient rising from 0.58 in 1961-62 to 0.63 in 1982. This suggests considerable leasing of land.

Redistribution

In accordance with the National Guidelines of 1972, ceilings legislations were enacted in all States, except Goa and the North-East. The amount of land declared surplus subsequent to the Ceilings Act was only 72.2 lakh acres. Of this 46.5 lakh acres had been distributed by the end of the Seventh Plan. While the redistribution of the remaining land is of utmost importance, it is felt that even with the present ceiling level there is considerable ceiling surplus land. Moreover, given the fact that small farms are viable with the available level of technology, it is possible to consider reducing the ceiling limits in order to bring about a more egalitarian redistribution of land. Of course, with the increasing pressure of population on land, the average size of holdings is declining and it may not be desirable to reduce the ceiling limit further.

Consolidation Of Holdings

Fifteen States have passed laws for consolidation of holdings. In selected areas of Andhra Pradesh, Tamil Nadu, Kerala, Pondichery and the North Eastern States these laws have not been enacted. Consolidation of holdings has made very good progress in States like Punjab, Haryana and U P., which has facilitated agricultural growth. There is a fear among tenants, share-croppers and small land owners that consolidation benefits the larger farmers. However, it is imperative that consolidation is expedited so as to make ownership holdings compact and to facilitate the provision of irrigation and other inputs optimally.

Updating Of Land Records

Whether ceiling surplus land is distributed or the erstwhile landless tenants acquire rights or land is transferred through inheritance sale or gift, it is necessary that the land records are updated, with the entries in the name of actual owners/tenants. The Government of India has a specific scheme for this purpose, as the status of land records is still far from satisfactory, and this must precede any attempt at agrarian transformation.

Despite the achievements in the sphere of land reforms a lot still remains to be done. Land is still the single most important asset in India and as has been stated above, even the small farm can be a viable economic unit both in terms of employment and income for a family. Given that two-thirds of our population is still dependent on agriculture, the successful implementation of land reforms would go a long way in alleviating poverty and in creating an environment for higher investment in land leading to higher agricultural output.

The Eighth Plan has reiterated the need for successful implementation of a land reforms package. The objectives of this are stated in the plan as follows

(i) Restructuring of agrarian relations to achieve an egalitarian social structure,

(ii) Elimination of exploitation in land relations:

(iii) Actualisation of the goal of "land to the tiller",

(iv) Improvement of socio-economic conditions of the rural poor by widening their land base;

(v) Increasing agricultural productivity and production;

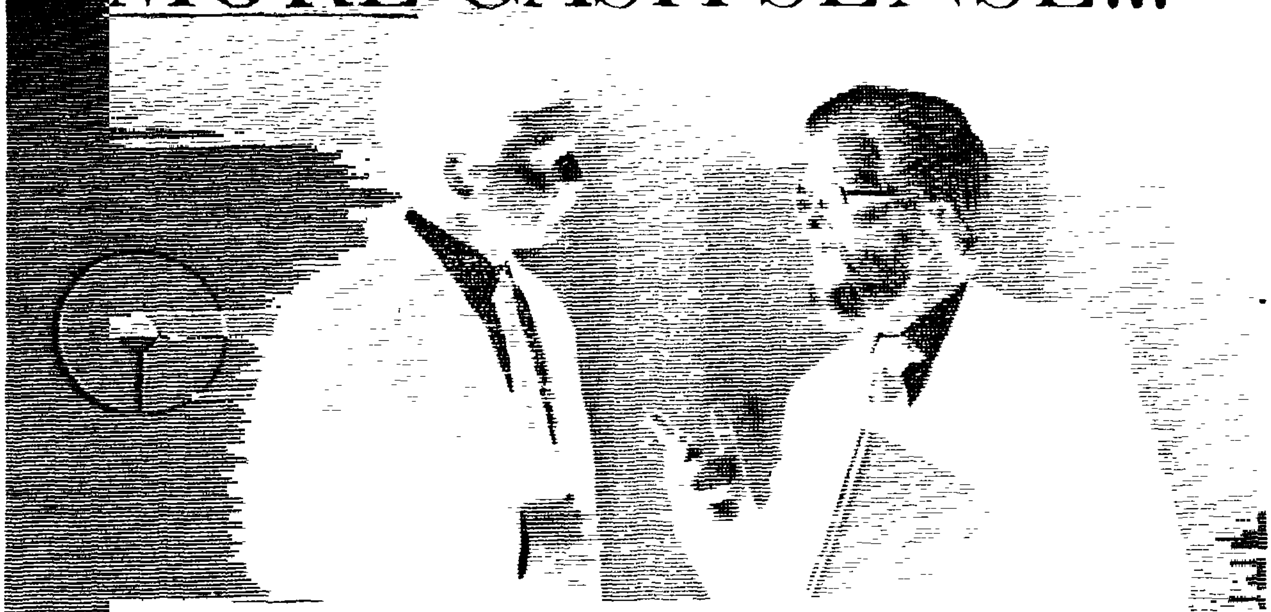
(vi) Facilitating land-based development of rural poor; and

(vii) Infusion of a greater measure of equality in local institutions.

In order that land reforms succeed, it is necessary to generate greater awareness amongst the actual cultivators of their rights, and help them to claim the benefits. Ceiling surplus land must be detected and redistributed. In addition, waste lands and degraded lands could also be distributed to the poor and landless. In order to ensure that the acquired land is brought under agronomic practices, assistance in the form of access to essential inputs must be provided for updating of land records via strengthening of revenue administration through purchase of equipment and training and subsequent computerisation.

Given that enforcement of land reforms is a State subject, the responsibility for bringing about a more congenial system of land relations lies with the State Governments. To the extent that the central government can exercise its influence, land reforms are given weightage in the allocation of central assistance to the States, within the Gadgil formula. Under the better performing States would get a higher allocation from the general pool of central assistance to the States. Now with the 73rd Constitutional Amendment Act coming into force, people's greater involvement in the planning and implementation of developmental works/programmes at the grassroots level will be possible through the Panchayati Raj Institutions. This should help generate greater awareness among the people, particularly the poor of their rights. □

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Emerging Trends In Horticulture

Dr. G.L. Kaul

Apart from revolutionising the production of wheat and paddy in the country, the Green Revolution had brought in its wake several problems such as disturbances in the water table levels, soil health and overall agro-eco system and emergence of micro nutrient deficiencies etc. which rang alarm bells both for the agriculturists and the planners, says the author. However, the emphasis on horticulture as a part of the diversification strategy has brightened up the scenario and there is hope for better results in view of the vast export potential of horticultural crops, he feels.

THE Indian agriculture has witnessed several major deviations from the routine course in the last 45 years since Independence, leading to a few landmarks, thereby making it as one of the most dynamic systems in the country Its resilience against severe weather onslaughts has been another dominant feature helping in keeping away the disasters which normally follow sudden drops in annual foodgrain production The 'Green Revolution', which is often quoted in the world as one of the unique examples of success achieved through planned investments and policies, brought in an era of self-sufficiency in the foodgrains. The net availability of foodgrains improved from 350 gm per day in 1951 to over 600 gm per day in 1989-90, despite doubling of population during this period

It has to be admitted that the impact of Green Revolution was mostly confined to wheat and paddy However, as the production of these two major cereal crops rose, the cost of inputs and overall cost of production went up substantially because of inflationary pressures unleashed by increasing farm income Consequently, the net returns showed a marked decline despite heavy subsidy support and assured prices for the foodgrains being procured year after year by the Government Land use system, particularly in northern plains was dominated by paddy-wheat rotation which, over a period of time caused serious disturbances in the water table levels, soil health and overall agro-ecosystem. The ground water has extensively exploited, thus lowering the water table and with this the problem of salinity started emerging as a serious problem in many areas. Other problems connected with this were formation of impervious layer in the soil due to continuous puddling, decline in water in-take rate causing serious problems and the lack of aeration for the succeeding crop, emergence of micro nutrient deficiencies particularly of iron and manganese in light-textured soils and predominence of pests and diseases These developments rightly caused serious alarm for the agriculturists, planners and policy makers of the country, and resulted in the emergence of the concept of diversification as an inevitable means of arresting the diminishing returns from the traditional agriculture

Diversification

Diversification of Indian agriculture from the traditional land use systems based predominently on cereal-based cropping systems to more productive and remunerative ones has now become a new milestone to be achieved in Indian agriculture Horticulture provides one of the few viable and most attractive alternative land use systems as a part of the diversification strategy With this a new era in the agricultural scenario of the country started emerging. For instance, in Punjab, which achieved commendable heights in foodgrain production and in the intensity of cropping practised (175%) was forced to consider diversification as a major alternative for sustaining income from agriculture, and accept recommendation of Johl Committee set up in 1986, favouring diversion of about 6 25 per cent of the cropped

area in the State to the horticulure crops by 2000 A.D., as against 1.85 per cent as existed in 1986. The State has already started implementing these recommendations and today it is reported to have achieved coverage of over 3 per cent so far under these crops.

In Dryland Areas

The arid zone and the dryland areas of the country provide another case study to substantiate emerging trends in the Indian agriculture in favour of horticulture The dryland area accounts for over 60 per cent of the total cultivable area in the country contributing only 35 to 40 per cent of the annual agricultural production Of this, the arid zone alone accounts for about 20 per cent of the cultivable area measuring about 31 million hectares This area, however, does not include over 7 million hectares of cold desert in Ladakh area of Jammu & Kashmir The hot arid zone is characterised by low average rainfall between 160 to 350 mm, low atmospheric humidity and high transpiration losses of water The soils of this region are highly saline with low capability and poor moisture storage capacity. Therefore, growing food or field crops under such situations are quite

Horticulture provides one of the few viable and most attractive alternative land use system as a part of the diversification strategy. With this a new era in the agricultural economy of the country started emerging.

risky In such situations horticulture crops like ber, pomegranate, date palm, fig, losada are much better suited having ability to withstand most of the abiotic stresses.

Similarly, in the semi-arid and dry sub-humid region found extensively in Andhra Pradesh, Maharashtra, Karnataka, Gujarat, Haryana, Tamil Nadu, etc. which constitute bulk of dryland areas characterised by instability in production due to erratic and inadequate rainfall suffer crop failures very frequently The crop production mainly of coarse grains in these areas is of very subsistence level The productivity of both land and animal is low Most of the rainfall received is lost through excessive run-off and consequently there is little build up of irrigation potential Cost benefit ratio of fruit like mango under these conditions was 3 35 as against less than 2 in sorghum and groundnut. There is a perceptible shift towards fruit in these areas Fruits like mango, guava, custard apple, ber, cashewnut, etc are being planted extensively replacing traditional millets even pulses

Other States

Maharashtra and Gujarat are the other States showing marked shift in favour of horticulture crops. In Maharashtra, there has been a significant increase in the area and production under these crops during the last 10 years In 1981-82, the horticulture crops including spices and condiments covered 3 76 lakh hectares, while in 1991-92 it was 6 40 lakh hectares, accounting for an increase of about 100 per cent in the last 10 years Fruits like grape, mango, mandarin pomegranate, custard apple, cashewnut, etc have dominated the expansion programme In Gujarat, ber cultivation was not known till the 60's and today it has already covered 4,500 hectares Other fruits like sapota, pomegranate and date palm are also being planted extensively Aonla (Indian gooseberry), bael and ber are being planted in dryland areas of U P , A P , Punjab, Haryana, Tamil Nadu, Gujarat etc

Kerala provides another instance of trend towards diversification in favour of horticulture crops under tropical agroclimatic situations The area under paddy in the state has come down appreciably, by about 22 per cent, in the last two decades, while the area under horticulture crop has increased by 33 per cent since 1965-66 This also includes area under plantation crops like tea, coffee and rubber Maximum diver-

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sification of the area has taken place in favour of rubber followed by coffee, cashew, cardamom, and coconut, indicating the preference for high value crops due to their importance for export

Oil Palm Cultivation

The most significant example of crop diversification in favour of plantation crops is provided by the oil palm cultivation The red oil palm is a source of two of the most important vegetable oils viz , the red palm oil and palm kernel oil, both of which are obtained from the fruit of this plant The crop has a production potential of 6 to 8 tonnes of oil per hectare per year Although, this species was introduced in India in 1834, its systematic cultivation was taken up only in 1962 in Kerala However, major emphasis on this crop started following setting up of Technology Mission on Oilseeds with the primary objective of making India self-sufficient in the edible oils. Oil palm is considered as one of the most important sources for meeting edible oil requirements on a long-term basis Over 5 0 lakh hectares have been identified suitable for the crop in different states replacing mostly rice-based or sugarcane-based cropping systems in States like Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, West Bengal,

Orissa, Gujarat, Tripura and Assam Many private companies have sponsored large plantations through the import of improved "tenera" hybrid seeds The Central Government is providing incentives to the farmers during the initial establishment of the crop, and also helping in setting up of community oil extraction units near to the production zones

Importance

Horticulture crops encompassing a large variety of fruits, vegetables, flowers, plantation and spice crops, medicinal and aromatic plants, roots and tuber crops, etc cover slightly more than 7 per cent of the gross cropped area but contribute more than 18 per cent to the gross value of the agricultural output of the country The total area under these crops today (including tea, coffee and rubber) is around 12 58 million hectares with an annual production of around 100 million tonnes The area as well as production under these crops have been growing steadily since 1950 For instance, area under fruits has increased from 1 12 million hectares in 1951-52 to 3 3 million hectares in 1990, while their production has gone up from 11.7 million tonnes to 28 2 million tonnes during the same period Among vegetables, potato has registered an increase of 340 per cent in area and over 740 per cent in total production during this period Among plantation crops, area under cashewnut has increased by over 130 per cent

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Apart from their contribution to the total agriculture production of the country, their potential for providing much higher income to the farmers than the cereals has been another major factor for favouring these crops in the diversification campaign Fruit and vegetables earn 20 to 30 times more foreign exchange per unit area than the cereals Similarly, in the area of employment generation, these crops have greater edge over other crops The average labour required for fruits works out to Rs 869 per hectare as against 140 man-days for the cereal crops crops like grapes, banana and pineapple generate much larger employment ranging from 1,000 to 2,500 man-days per hectare

Nutritional Aspect

Horticulture crops are closely associated with determining health standards of the people Fruits and vegetables are well-known sources of essential nutrients like vitamins and minerals, essential for several metabolic processes in the human body these are considered to be the cheapest source of nutritive foods, particularly of Vitamin A & C and minerals like calcium, magnesium, iron etc Consequently, these have been assigned cornerstone role in the Food Selection Guides of the U S Department of Agriculture (USDA) since 1920 The number of food crops in the Guides changed several times in the past, but fruits and vegetables remained permanent items for their unique contribution of roughages or dietary fibre and of essential nutrients

One noticeable emerging trend involving horticulture in the country is increase in consumption of fruits and vegetables Annual growth in domestic consumption trends of fruits and vegetables is reported to have gone up from 2 5 per cent in 1980-81 to about 6 5 per cent in the recent years Consumption trends are comparatively higher in the urban areas These indices provide a good support to project a demand of over 35 million tonnes of fruits and about 115 million tonnes of vegetables by 2000 A D for domestic consumption alone Such high production levels can be achieved only through large scale expansion of the area under these crops replacing the low

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remunerative crops in the process These trends are indicative of the pressures likely to generate for improving production of crops particularly fruits and vegetables Such pressures are bound to increase further as the consciousness of the people towards having a better health becomes pronounced

Development Programmes

In view of the acknowledged role of horticulture crops in enhancing productivity of the land, uplifting economy of farmers and improving overall national economy, a major thrust has been accorded to the development of these crops in the recent years These crops did not receive any major attention till the Fourth Plan period Consequently, the growth in the development of infrastructure for research, extension and production remained highly restricted However, in the Seventh Plan, the allocations for the developmental activities went up to Rs 24 crore from Rs 7 6 crore in the Fifth Plan The current Plan has broken all records with the Plan allocation of Rs 1,000 crore for horticulture crops, accounting for an increase of over 4,000 per cent over the Seventh Plan The Eighth Plan, therefore, can rightly be considered as a major milestone in the growth of horti-

culture in the country Schemes for the development of crops like floriculture, tuber crops, arecanut, medicinal and aromatic plants, betelvine and mushrooms are being taken up for the first time Special programmes with a substantial outlay having direct relevance to these crops have been proposed These are use of plastics in horticulture, developing infrastructural facilities for post harvest handling, and enhancement of exports These programmes are aimed at improving supply of planting/seed material of genuine quality, and promote adoption of improved technology including water management, pest control etc for improving productivity of individual crop and quality of the products, avoiding wastes and above all generating surplus for the industry and for exports

New Trends

The importance being given to horticulture crops in prevailing agricultural scenario of the country has contributed to emergence of new trends There is now a major involvement of the private sector and better realisation of the potential of these crops on the part of the producers

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The liberalisation policy of the Government has helped considerably bringing about this development One such step taken about five years back was the introduction of "New Seed Policy" through which an Indian producer can import freely seed/planting material of horticultural crops, particularly fruits, vegetables or flowers This has given rise to several joint ventures between Indian and foreign companies for introduction of high-yielding varieties and improving productivity of crops.

Great enthusiasm has been shown by the private producers in developing international contacts for importing improved material or technology and/or for exporting the finished products In this, floriculture has received much larger attention and is gradually becoming a major component in the export programme This is primarily due to the fact that the world flower market is growing at an annual rate of 10 to 15 per cent according to Agricultural & Processed Food Products Export Development Authority (APEDA) report, while India has an annual growth potential of 25 to 30 per cent in view of its rich and diverse agro-climate conducive to growing of a large variety of crops, availability of ample sunlight and low labour costs In 1991-92, India exported plants and flowers worth Rs 14 45 crore and the targets proposed as per the potential is Rs 100 crore within next 3 to 5 years, which should not be difficult to achieve

Several private entrepreneurs have established tissue culture facilities for large scale multiplication of new varieties Similarly, the concept of protected cultivation, in other words, use of green houses for growing flowers under controlled or partially controlled conditions is fast catching up The Government plans to provide assistance for setting up green houses and tissue culture units A few units for post harvest handling of cut flowers have already been sanctioned

Attraction Of High Return

Emphasis on high value-low volume crops is gaining momentum in several areas particularly in the South and in the North-Eastern region Preference is shown for crops like black pepper, cashewnut, cocoa, cardamom, tree spices, etc which fetch a high price in the domestic as well as international market, and can provide quicker returns Emphasis in cashewnut is on planting grafts of improved and high yielding varieties/hybrids having kernel weight of export standards Systematic replacing of old seedling plantations characterised by a very low productivity is part of this campaign Major emphasis of the governmental promotion programme in this case is,

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therefore, for multiplication of grafts of improved varieties and distributing them at subsidised cost

Similarly, large area is now coming up under cocoa, mostly as inter-crop in arecanut, due to the increased consumption of chocolate-based confectionery items It may be recalled that this crop had been abandoned and trees uprooted by the farmrs about 10 years back following slump in the demand and low prices Today the production is around 7,000 tonnes and is growing steadily

India was once upon a time a major supplier of spices, accounting for 85 per cent of the world's trade The position has declined considerably now Efforts are, therefore, on for regaining the position to the extent possible by improving quality of the produce and also by exporting spice products Assistance under central sector schemes has been proposed with these objectives in view

Mushroom constitutes yet another commodity which is showing encouraing trends as far as its market potential is concerned Mushroom growing has attracted attention of

the farmers only in the recent past and it is growing at a faster rate Among the cultivated mushrooms, button, oyster and paddy straw mushrooms are being grown in different parts of the country In north India mostly button mushrooms are grown during winter season because of there specific temperature requirements The button mushroom production today is around 2,600 MT, which a decade back was almost non-existent Cultivation of mushroom under controlled conditions is picking up and recently two large scale integrated projects have started production and procesing One is near Madras and other is in Dehradun About 20 schemes have been registered as 100 per cent EOU during 1991-92, many of which propose to have foreign technology and financial collaboration Under the Central Sector Programme assistance is being provided for setting up of spawn units and pasteurised compost units in each State

Unprecedented

Among fruit, export of mango grape, and litchi, and among vegetables, onion, asparagus, potato etc are the other welcome emerging trends Export of grapes in particular is an unprecedented success story achieved through sheer innovativeness of the grape growers ably assisted by the liberal import policy allowing introduction and adoption of improved technology for post harvest handling Grape cultivation in Maharashtra and Andhra Pradesh (Hyderabad) has received tremendous boost in the recent past India holds world record in grape productivity having touched over 60 tonnes per hectare recently

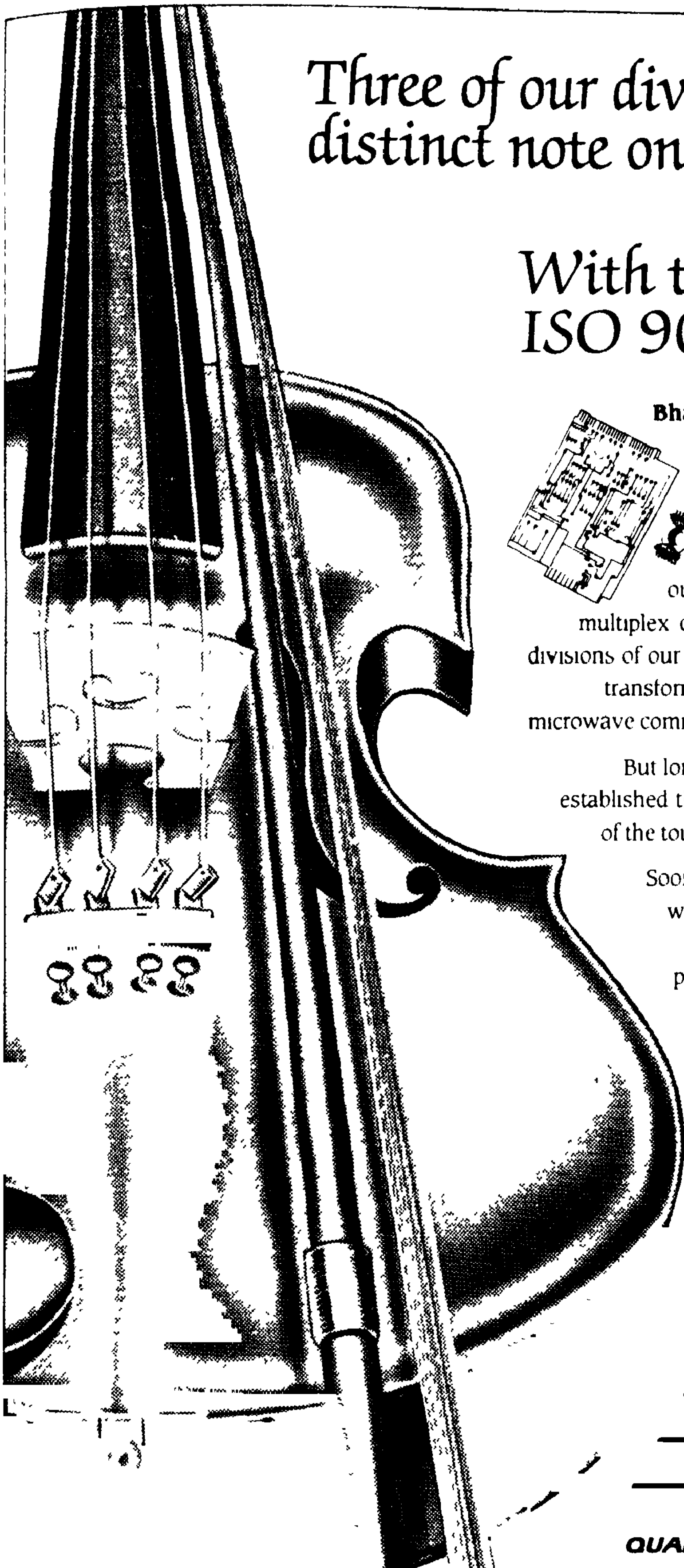
Export of grape and mango has been going up year after year facilitated by the introduction of pre-cooling units, improved packaging and container service for sea transportation from Bombay to European and other markets Grapes become available in that part of the world at a time when these are not available from anywhere else and, therefore, fetche a premium price Fresh mango export has also gone up both in value and quantity, and the encouraging trend is that varieties other than Alphonso have also made their entry in the fresh fruit trade abroad Litchi is a new entrant in the export list, with annual export gradually picking up

The increasing emphasis on quality and better resource management has lead to a major interest being shown in use of plastics for horticulture crops The drip irrigation systems which were introduced in the country 10 years back, have now attracted large investments in the private as well as public sector for reducing water usages and improving productivity and quality of the produce Area under drip irrigation has increased from 1,000 hectares in 1985 to 55,000 hectares in 1991-92 This system has already demonstrated its usefulness in saving of water to the extent of 50 to 70 per cent and increasing yield from 30 to 100 per cent in several horticulture crops This would also help in saving in fertiliser consumption and labour besides its adaptibility in hilly and undulated terrains and areas with low water availability. The other usages of plastics are in green houses (poly houses) for growing high value crops of high quality The green house cultivation has not picked up as fast as the drip irrigation system, but has shown its potential for growing flowers and vegetables in the off-season and for export

Another major emerging trend is the thrust being given to adoption of better post harvest handling system for the perishable crops and liberal assistance being given by the government in developing appropriate infrastructure in the country.

Another major emerging trend is the thrust being given to adoption of better post harvest handling system for the perishable crops and liberal assistance being given by the government in developing appropriate infrastructure in the country As is well known by now, India has been losing 25 to 40 per cent of the perishable produce annually during post harvest handling accounting for a revenue loss of Rs 3,000 crores The importance of introducing better post harvest management practices is gradually being realised The trends towards this direction are visible through involvement of private sector in developing infrastructure, introduction of improved technologies such as pre-cooling units, use of paper guard in grape packing, use of plastic crates, improved packaging replacing wooden boxes, organised marketing through modernised retail outlets, etc □

The author is Horticulture Commissioner, Govt of India



Dunkel Proposals And India

A.N. Prabhu

Examining various aspects of the Dunkel Draft Text which are relevant to us, the author says that India would certainly follow its own policy on agriculture as it is not a trade but a way of life for us. Food security and food self-sufficiency are not matters which can be negotiated, he feels.

PERHAPS no report has as extensively and intensively been discussed as the Dunkel Draft Text (DDT) Mr Arthur Dunkel, the former Director-General of the General Agreement on Tariffs and Trade (GATT) prepared a set of proposals based on the protracted Uruguay Round of trade negotiations which started in September 1986 It was originally sheduled to conclude in December 1990 but got bogged down in controversial issues

The negotiations stalemated on sharp differences between member-countries in such areas as agriculture, intellectual property rights and textiles DDT takes into account the stage at which the negotiations stood and demarcates areas of differences that still persisted DDT then goes on to propose a package that could accommodate the interests of all the participating countries DDT thus is aimed at taking the negotiations a step forward and as such offers talking points for the contracting parties

In India, DDT has become a bone of contention as normally every proposal does What needs to be kept in mind, however, is that DDT seeks to reconcile various shades of opinion in the 107-member GATT countries It will be difficult, if not impossible, to have every point favourable to any particular country What is sought to be achieved is a broad consensus on a variety of complex issues

DDT has come under attack mainly on its proposals on agriculture, trade-related intellectual property rights (TRIPS) and trade-related investment measures (TRIMS) and trade in services Other issues are of lesser importance

DDT And Agriculture

On agriculture, the main concern is on domestic subsidies, public distribution system (PDS), access to Indian market to be given to foreign suppliers and patenting of seeds

DDT spells out two types of subsidies non-product specific subsidies and product-specific subsidies Non-product subsidies are those given for fertilisers, water, seeds, pesticides and cost of credit available for all crops For developing countries, DDT does not envisage any reduction of such subsidies if their value is below ten per cent of the total value of agricultural output in years between 1986 and 1989 Even here, the subsidies given to poor and marginal farmers have been left out

The Commerce Ministry has worked out that in India, non-product specific subsidies given between 1986 and 1989 did not exceed 5.2 per cent It will be much less if subsidies given to small and marginal farmers constituting 80 per cent of farmers in India, are included

The Ministry has also calculated that the aggregate measure of support (AMS)—estimates for both non-product specific and product-specific—would be negative for India for most products and positve but less than 10 per cent on one or two products

DDT does not speak of the country's obligation to consumers It is, therefore, clear that the PDS does not come under the Dunkel proposal because it is a subsidy given to consumers, and producers (farmers). India has been assured that the stockholding of rations through the Food Corporation of India or the PDS would not be affected in any way if the DDT proposals were to be accepted

The Commerce Ministry study has shown that in 20 out of 23 items, subsidy is negative in India because the international price is higher than the domestic price It is only in the case of three items such as sugarcane, HPS groundnut oil and tobacco that there is the danger of the subsidy exceeding 10 per cent limit In any case, it is the aggregate and not individual items to which the ten per cent subsidy limit is sought to be applied

Agricultural Imports

DDT has proposed a minimum market access commitment for import of agricultural products to the extent of 3 per cent of the Indian market But it is said that this would not apply to India because it is under a balance of payments cover in GATT Because of the BoP (Balance of Payments) problem, India can have quantitative or other restrictions to ban or regulate imports True, it is not necessary that India will always be under BoP problem The agreement on agriculture is for a 6-year period at the end of which it is to be reviewed It is also true that India may not have BoP problem in the meanwhile So much the better At least for the present, India is not expected to give any minimum

In India, DDT has become a [illegible] however, is that DDT seeks to reconcile various shades of opinion in the 107-member GATT countries.

guarantee for market access to others What happens at the end of six years remains to be seen.

No Patenting Of Seeds

It is widely speculated that DDT would require India to patent seeds This would mean that the farmers will not be able to retain seeds for their own use and will have to buy it from multinational companies every year DDT in fact does not coerce any country into patenting its seeds, namely, plant varieties It is explained that DDT leaves the countries free either to give patents or adopt an effective *sui generis* system of protection or mixture of both for plant varieties Each country can choose its own system of protection for plant varieties

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The government has made it clear that seeds are not patentable in India today and it does not have any intention of changing the system The government has clarified that it will adopt its own system for protection of plant varieties under which it may provide certificates for plant breeders' rights India has made it clear that such a system of protection will provide for "farmers' rights" and "researchers'rights" The farmers' rights ,would mean their using the seeds for their own use or for exchange in village community according to their traditional customs. The government stand is since the farmers' rights will be safeguarded fully under its system of protecting the plant breeders' rights, there is no truth in the allegation that the farmers will not be able to retain the seeds for their own use and that they will have to buy seeds every year from multinational companies In fact, such a system of plant breeders' rights will make available improved and better varieties of seeds in the market, and a major beneficiary will be India's own agricultural research institutions

Not Negotiable

From this it follows that there is no question of India not following its own policy on agriculture For India, agriculture is not a trade but a way of life. Nearly two-thirds of the 850 million people depend on agriculture and therefore there is no question of their freedom being restricted Food security and food self-sufficiency are not matters which can be negotiated

The fact is the issue of subsidy is of prime importance to the industrialised countries The dispute is between the United States and the European Community Both give heavy subsidy to agriculture They will have to come to terms and reopen the stalemated Uruguay Round If they reduce subsidy on agricultural products, their prices will have necessarily go up and exports of these items from developing countries will become competitive

A lot has been said and written about TRIPS It has seven areas copy right, trade marks, trade secrets, industrial designs, integrated circuits, geographical indications and patents In six of these areas (barring patents), Indian policies, laws and regulations, as well as the administrative and judicial system, are on par with those obtaining in the rest of

DDT in fact does not coerce any country [illegible] plant varieties.

the world. It is also in line with our practices But the controversy on patents overshadowed all the other six areas giving an impression to the world that India does not believe in intellectual property rights or that piracy and counterfeiting are condoned in India in respect of intellectual property rights The government

(Contd. on page 69)

Boosting The Agricultural Exports

Surinder Sood

Globalisation of Indian agriculture would ensure not only better returns to farmers but would also facilitate the much needed capital formation in the rural sector. Agricultural exports assume further significance as they contribute towards employment generation apart from diversification of agriculture, feels the author.

THOUGH the history of India's farm exports is fairly old, the focus on this aspect has never been as sharp as now In fact, in the past several decades, the country has virtually been obsessed with feeding the growing population This was rightly so as a newly-independent nation could ill-afford huge imports of foodgrains year after year Any talk of exporting agriculural goods in such a situation was viewed with suspicion

The scenario has since changed dramatically The food problem has more or less been solved and the agriculture sector has established its resilience Though farm produce surpluses are still erratic, the country is in a position to plan for exporting The concept of exporting high-value farm goods and using the foreign exchange earned for importing relatively cheaper items, if need be, has been gaining legitimacy of late A boost to farm exports indeed forms a significant component of the economic reforms carried out in India recently Besides acquiring hard currency to imporve the country's balance of payments position, agricultural exports are deemed necessary to sustain the tempo of development of the farm sector as a whole The globalisation of Indian agriculture is viewed as a means of ensuring better returns to farmers besides facilitating the much-needed capital formation in the rural sector While new markets are being explored for the items India has traditionally been exporting, new items are also being identified and developed with an eye on the international market

Traditionally, India has been a premier supplier of several items to other countries of the world These include tea, cashewnuts, tobacco, spices, sugar, raw cotton, etc India had also been a major supplier of certain agro-based manufactured products like jute products, cotton yarn and textiles leather goods, etc However, agricultural exports did not show much growth till the 1960s The export earnings started looking up thereafter due partly to the inflation in the world economy and partly to the increase in the demand for Indian products But the performance of this sector was far from satisfactory as only a fraction of the real export potential could actually be tapped It has indeed been only in the last few years that agricultural exports have got the real shot in the arm The endeavour of exporters is being duly supplemented by fiscal incentives The vital infrastructure sector, too, is getting a lot more attention now than in the past. There is a move now to encourage producers to make available goods conforming to the international standards and meeting the demands of the importers Consequently, while the export of new items is picking up at a much faster pace than that of traditional items, which in some cases are even showing a negative growth

The major objectives of the government policy with regard to the farm export and import have been two fold i) to maximise agricultural exports and foreign exchange earnings, ensuring a reasonable return to the producers, keeping in view the

important considerations of domestic availability of essential commodities particularly of mass consumption at reasonable prices; and ii) a realistic import policy under which the government keeps in mind various considerations including demand/supply situation, indigenous production, conservation of foreign exchange resources, etc

It has now been realised that agricultural exports play a significant role in employment generation and diversification of agriculture The low intensity of imports in the farm sector further enhances the importance and significance of agricultural exports.

The export-import policy for the period April 1992 to March 1997 provides new avenues for agricultural exports A number of items such as oilseeds, edible oils, pulses and processed pulses, coconut and copra, sugarcane, etc , which were banned earlier for export, are included in the licensable category of export Export of certain commodities like onion and niger seeds is canalised The export of onion is canalised through National Agricultural Cooperative Marketing Federation of India Ltd (NAFED) and niger seed export is canalised through NAFED as well as

Besides acquiring hard currency to improve the country's balance of payments position, agricultural exports are deemed necessary to sustain the tempo of development of the farm sector as a whole.

the Tribal Cooperative Marketing Federation of India Ltd (TRIFED) The export of marine products, cashew, spices, fresh fruits and vegetables, floriculture products, etc , is allowed freely Export of Basmati rice and other types of rice is allowed subject to minimum export price (MEP), while the export of oilseed extraction (oil meals) is allowed subject to registration of contracts with the respective associations

Farm exports had witnessed an impressive growth rate during 1991-92 The performance of rice, oilseed extractions, fruits and vegetables and marine products was particularly noteworthy Export trend in 1992-93 is quite encouraging Export of rice, oilseed extraction and marine products has registered handsome growth According to official estimates, the total farm exports during 1992-93 crossed Rs 7,600 crore This is substantially higher (about 23 per cent) than the level of Rs 6,200 crore achieved in 1991-92

The Agriculture Ministry is of the firm view that agricultural exports had the potential to reach the level of Rs 8,500 crore in 1992-93 itself The opportunity of achieving the highest ever growth of about Rs 2,500 crore, or 37 per cent, could not be realised due to certain discrepancies in the policies governing export of rice and cotton, besides other commodities

Krishi Bhavan feels that the export of rice alone could be stepped up to worth $ 1 billion from the present meagre level of around $ 300 million by rationalising the policies The unrealistic Minimum Export Prices (MEP) and the stock limit imposed under the Essential Commodities Act are the two chief hurdles in boosting exports Ban on the export of non-Basmati rice has, however, already been lifted The MEP of $ 550 per tonne for Basmati rice and $ 275 a tonne for non-Basmati rice is deemed too unrealistic The prevailing international price for medium quality Basmati rice, which has a substantial demand, is around $ 400 a tonne Since under the existing minimum export pricing norms, the medium quality Basmati and other types of scented rice are treated at par with the Basmati rice, the exporters cannot sell them abroad The country, in the process, is deprived of precious foreign exchange

Around 16 million tonnes of rice is traded in the international market every year India's share at present is quite meagre Countries like Pakistan export about 50 per cent of their domestic rice production The USA also exports about 50 per cent of its

Export of new items is picking up at a much faster pace than that of traditional items, which in some cases are even showing a negative growth.

four to five million rice output India is the world leader in the superior quality Basmati rice which is traded in the world market at between $ 700 and $ 1,000 a tonne This type of rice would continue to retain market The problem is for the other types of Basmati and scented rice which are priced lower and have considerable international demand The Agriculture Ministry feels that if the MEP is either abolished or substantially reduced, India should be able to export about half million tonne of superior Basmati rice (valued roughly at around $ 400 million), about one million tonnes of medium Basmati rice (worth about $ 400 million) and almost an equal quantity of ordinary rice (valued at $ 200 million) The total exports, therefore, would be worth around $ one billion

In the case of wheat, too, India can capture part of the international market Durum wheat (hard wheat used for making pasta products like noodles, macaroni, spaghetti, etc) enjoys good demand in the world market It, in fact, fetches a premium of $ 15 to $ 20 a tonne over the bread wheat Durum is already grown in several parts of the country and there is potential to raise its production manifold if facilities are created for its marketing At present, it is sold in the market as ordinary bread wheat and gets lower price because of its

Agricultural Exports Including Marine Exports And Their Share In Country's Total Exports

(Value in Rs crore)

Year	Value of India's total exports	Value of Agril exports including marine exports		Value of Agril. exports excluding marine products	
1987-88	15,674	2,454	(15.7)	1921	(12.3)
1988-89	20,232	2,598	(12.8)	1966	(9.7)
1989-90	27,681	3,486	(12.6)	2799	(10.1)
1990-91	32,553	4,696	(14.4)	3736	(11.5)
1991-92	43,828	6,196	(14.1)	4822	(11.0)
1992-93 (Upto Feb., 1993)	47,234	6,356	(13.4)	4800	(10.2)

Source Directorate General of Commercial Intelligence & Statistics, Calcutta

Note Figures in brackets represent the % share to the country's total Exports

Export of Agriculture, Plantation & Marine Products

(Value in Rs crore)

	Product	1987-88	1988-89	1989-90	1990-91	1991-92
1	Tea	601	609	917	1070	1132
		(3.83)	(3.01)	(3.31)	(3.29)	(2.58)
2	Coffee	262	294	347	252	310
		(1.67)	(1.45)	(1.25)	(0.77)	(0.71)
	Sub-total 1 & 2	863	903	1264	1322	1442
		(5.51)	(4.46)	(4.57)	(4.06)	(3.29)
3	Tobacco	135	125	175	263	377
		(0.86)	(0.62)	(0.63)	(0.81)	(0.86)
4	Spices	337	275	277	234	370
		(2.15)	(1.36)	(1.00)	(0.72)	(0.84)
5	Cashew	311	276	368	447	672
		(1.98)	(1.36)	(1.33)	(1.37)	(1.53)
6	Fruit Vegetable processed products	304	352	420	434	695
		(1.94)	(1.74)	(1.52)	(1.33)	(1.59)
7	Meat & products	88	94	114	140	231
		(0.56)	(0.46)	(0.41)	(0.43)	(0.53)
8	Marine products	533	630	687	960	1374
		(3.40)	(3.11)	(2.48)	(2.95)	(3.13)
	Sub-total 3 to 8	1708	1752	2041	2478	3719
		(10.90)	(8.66)	(7.37)	(7.61)	(8.49)
	Sub-total 1 to 8	2571	2655	3305	3800	5161
		(16.40)	(13.12)	(11.94)	(11.67)	(11.78)
9	Rice	339	331	427	462	755
		(2.16)	(1.64)	(1.54)	(1.42)	(1.72)
10	Oil meals	213	409	610	609	871
		(1.36)	(2.02)	(2.20)	(1.87)	(1.99)
	Sub-total 9 & 10	552	740	1037	1071	1626
		(3.52)	(3.66)	(3.75)	(3.29)	(3.71)
	Country's total exports	15674	20232	27682	32553	43828

Note: ***Figures in bracket are percentage to the total of country's export***

poor chapati-making quality. Some high-yielding varieties are now available for raising productivity and production of Durum wheat. If arrangements are made for marketing of Durum wheat separetely from the ordinary wheat, the farmers would take to its culivation in a big way. The export earnings from Durum wheat could be stepped up further by converting it into products prior to exports. The existing ban on the export of wheat products, too, would have to be lifted as wheat products have better marketing opportunities than wheat because of the growing trend in favour of fast foods the world over.

Consumer packs of well-known brands of different edible oils are known to have demand in the Gulf and other countries having large Indian population. The Agriculture Ministry has, therefore, proposed that the curbs on their export should be removed. The revenue earned from them could be used for importing cheaper edible oils, if need be.

Similarly, there is scope even for swapping superior quality pulses with larger quantity of ordinary pulses traditionally consumed by the common man. India has the best pulse processing facilities in the world, besides being among the

The export-import policy for the period April 1992 to March 1997 provides new avenues for agricultural exports. A number of items, which were banned earlier are included in the licensable category of export.

largest pulse producers. The Indians settled abroad prefer to buy good quality Indian pulses and are prepared to pay higher prices for them. There is good demand for typical Indian pulses like "Arhar", "Masur", and "Moth" which fetch premium price in the areas having large population of Indian and Pakistanies. The foreign exchange earned from the export of these pulses could be utilised for importing larger quantities of cheaper pulses readily available in the international market, such as peas, chickpea and "mung". According to Agriculture Ministry estimates, between 50,000 and one lakh tonnes of pulses could be exported in exchange for double the quantity of ordinary pulses. In 1991-92, a record quantity of 4.16 lakh

tonnes of onion, fetching Rs 183.24 crore, was exported by NAFED and its associate shippers In 1992-93 about 2 5 lakh tonnes of onion were exported till September last

Cotton output in the recent years have been setting new records. The exports, however, have not risen commensurately due to several reasons In the current year, the cotton export quota was orginally kept low and was released too late The delay in releasing the quotas has cost the country, as also the farmers, dearly Timely export of even a couple of million bales could have helped fetch around Rs 1,300 crore of valuable foreign exchange Though the total export quota for the year has been stepped up, the Agriculture Ministry is still trying for increasing it further in the interest of cotton growers In any case, to sustain the export market, cotton exports have to be stable and regular India has the advantage of growing cotton of different types, covering full range of staple length The domestic textile industry is in a position to use only a few specific types of cotton The other types can be exported on a long-term basis There is also scope for value addition by converting cotton in yarn before exporting

The export of marine products has continued to grow steadily, becoming one of the largest foreign exchange earners for the country This sector is expected to perform even better in the years to come due to rapid modernisation following the placement of sea-food processing machinery under the open general licence system and reduction of duties on it. Besides, rapid progress is being made in creation of infrastructure necessary for boosting marine exports

Sugar exports have been fluctuating widely in the past two decades depending on the extent of surplus and the ruling international prices The latest thinking is that measures should be taken to stabilise these exports to retain foothold in the world market Now is perhaps the best time to do so as the country has already emerged as the world's largest sugar producers and there should be no difficulty in sparing quantities for export

Fresh and processed fruits and vegetables, flowers and other floriculture products, meat and meat products are among the other items which have a vast export potential Their present exports do not represent even a fraction of the total potential The most formidable constraint in tapping this potential is the lack of necessary infrastructure, including facilities for cold storages at ports and airports and hygeinic facilities for handling of these goods Nevertheless, these are increasing steadily In the case of fruits, India enjoys a natural advantage because of its diverse climate Virtually all kinds of fruits, vegetables and flowers are produced in the country in different times of the year This can assure year-round supply for meeting export obligations. In fact, attempts are already underway for exploring new markets for the Indian produce

There is scope also for the export of value added and processed fruits and vegetables The main export items in this sector include fruit juices, pulps, jams, pickles and chutneys, canned fruits and vegetables, concentrated pulps and juices, dehydrated vegetables, frozen fruits, frozen pulps and freeze-dried green pepper Improved processing and packaging facilities are called for to tap the export potential of these items □

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says "it is only in the area of patents, and that too primarily in the area of pharmaceutical patents, that there is a sharp divergence between the norms and standards advocated in the DDT and the Indian Patents Act 1970"

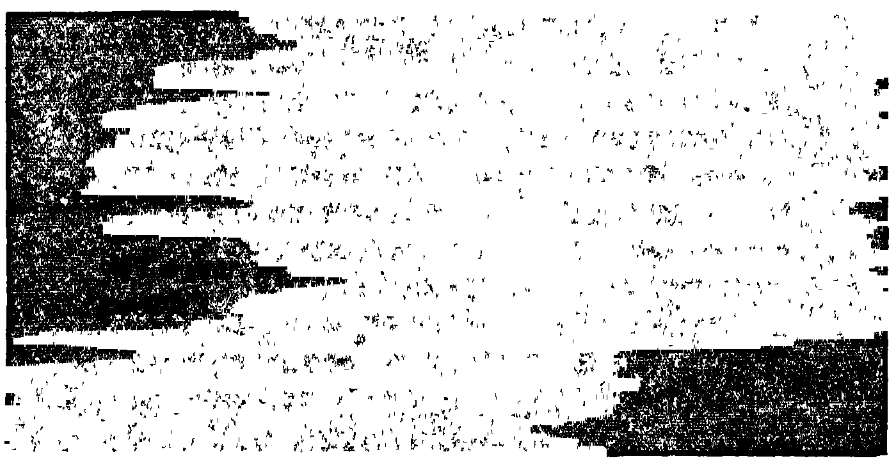
The Indian law provides for 'process' patent and not "product" patents. DDT proposes product patents in all branches of technology and provides for a uniform duration of 20 years for all patents. The duration of a patent in India is 7 years in the case of food and pharmaceutical sectors and 14 years in the case of all other sectors DDT provides for a five-year transitional period to all developing countries for implementation of the TRIPS agreement They will have an additional five years to apply to the TRIPS agreement if they do not provide product patent in any area of technology on the date of the coming into force of the Uruguay Round agreement. Thus, India will have an additional 5 years (or ten years in all) for applying to TRIPS agreement to those areas of technology where it does not provide product patent now.

The question therefore is whether a developing country such as India should not consider seriously going along with the world body instead of opposing every proposal GATT is the only multilateral forum available for smooth flow of goods and services through commerce It will be beyond human strength to individually discuss and arrive at agreement with each country a trade agreement. It will be in the country's interest to stick to multilateral forum. □

The author is Executive Editor, The Hindustan Times.

Draft Agriculture Policy Resolution And Agricultural Development

Arabinda Ghose



EVERY politician, economist or for that matter every journalist dealing with agriculture and allied topics never forget to remind the people that India is an agricultural country and the mainstay of the economy of this country is agriculture, as if this basic fact requires reiteration every time one opens one's mouth or sits on the typewriter or personal computer. This writer, who belongs to the third category, is no exception

Nevertheless, the word 'agriculture' evokes mixed sentiments. First, one of exhilaration at the sterling achievement of India's farmers, farm scientists and policy makers in taking the foodgrains production from a mere 50.82 million tonnes in 1950-51 to an estimated 180.30 million tonnes in 1992-93. The second, one of anxiety. For, with the population of India touching the 1000 million mark by the end of this century, the question that haunts one is: will India be able to produce sufficient foodgrains in order to ensure that no Indian goes to bed hungry by then?

The technological breakthrough in the late sixties in evolving high-yielding seeds, the vast expansion in irrigation and the widespread use of chemical fertilisers along with pesticides caused the green revolution. This story is quite well known and does not need any more elaboration. The only point one has to mention here is that despite all these developments, Indian agriculture still remains very much dependent upon the monsoons, particularly the south-west monsoon.

Before And After Green Revolution

The green revolution appears to have plateaued since the mid-eighties and surely it is a cause for anxiety. Which means that there is no steep increase in total foodgrains output from year to year as it had taken place in the previous decade and a half.

The production was 82.01 million tonnes in 1960-61 which jumped to 108.42 MT in 1970-71. This was obviously the result of the green revolution. According to the official figures, the production had remained at more or less the same level till 1963-64, when it actually fell to 80.70 MT. There was a recovery to 89.40 MT in 1964-65. Thereafter came the rude shock of failure of two

consecutive monsoons in 1965 and 1966 reducing the production during 1965-66 to just 72.30 MT and during 1966-67 to 74.20 MT.

These were the years of massive imports of foodgrains totalling about 10 million tonnes in 1966 alone. However, then came the green revolution and in 1967-68 the production jumped to a massive 95.10 MT, a rise of 23 million tonnes in just one year, and 99.50 MT in 1969-70 from 94.00 MT in the previous year. The figure for 1970-71, quoted above, showed a jump of another nine million tonnes in just one year.

The production, however, actually decreased in the following five years, totalling just 99.80 MT in 1974-75. These were the results of bad monsoons, the one in 1972 being particularly unfavourable. The reason why the trough production in these bad years did not fall below those of the initial years of the green revolution was that the green revolution itself

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sustained production despite adverse rainfall conditions. The bountiful monsoon of 1975 set Indian agriculture once again on the path of recovery and the peak production during the next four years rose gradually from 121 00 MT in 1975-76 to 131.40 MT in 1978-79

Then came the disastrous drought of 1979, reducing the foodgrains producton to only about 109 millions tonnes, a drop of 22 millions tonnes in just one year. Nevertheless, this steep fall in production did not necessitate any import, and outstanding achievement for India. This was because the stocks of foodgrains with the Central pool, thanks to the Food Corporation in India and other procuring agencies, had risen to a massive 21.03 million tonnes by July 1,1979, Thus, the Green Revolution on the one hand, and the public policies which set up the Food Corporation on Jan. 14 1965 and which resulted in the Government announcing attractive procurement prices for foodgrains every year on the other, staved off hunger and made India self-reliant in foodgrains by the end of the seventh decade of the present century.

The eighth decade cannot be said to have been particularly outstanding from the point of view of production of foodgrains Although in the very first year, 1980-81, owing to a good monsoon, the production registered an impressive growth of 129.59 MT, a jump of more than 20 MT in one year from the production in the previous year, the subsequent years gave evidence of the stagnancy in production, excepting one year, 1983-84. That year the production rose to 152 37 MT Thereafter, production actually fell every year, touching the trough of 140.35 MT in 1987-88, the year of the "century's worst drought"

About this time, the technological advancement one had witnessed during the green revolution and which had continued all these years, got a further boost from another quarter—the India Meteorological Department (IMD). IMD and its parent body the Department of Science and Technology (DST) evolved a mathematical model to forecast the behaviour of the South West Monsoon The very first year of the unique forecast, 1988, saw the "century's best monsoon" and resulted in the production of foodgrains going up to a massive 169.92 MT, more than 29 million tonnes higher than the production in the previous year.

Nevertheless, this was only 17.55 MT more than in 1983-84, which shows that the average annual increase between these two peak years was of the order of only 3.51 million tonnes a year. The following years too were not very satisfactory, 171.03 MT in 1989-90, 176.39 MT in 1990-91 and back to 167.06 MT in 1991-92. The monsoon was "normal but erratic and intially sluggish" in these years, and even with more or

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less normal monsoon in 1992, the production has reached the figure of 180.30 MT (estimated) in 1992-93, three million tonnes below the target.

This shows that in the decade between 1980-81 to 1990-91, the annual rate of increase in the production of foodgrains has been 4.68 million tonnes. Provided this rate is maintained, the production at the end of the century will be 223.20 MT (176.39 plus 4.68 multiplied by ten). However, from the trend of the last three years ending June 1993, the annual rate of increase has been only 3.90 MT. With this rate, the production in the terminal year of the century will be only 206.40 MT (176.39 plus 3 90 multiplied by ten).

Requirement By 2000 AD

It is interesting to observe that under both these scenarios, the production is below the level of 240 million tonnes estimated by many scientists and economists as the requirement of foodgrains per year in 2000 A.D. However, some other estimates indicated that the domestic demand of foodgrains would be

about 210 to 220 MT. It means that the Indian farmers and agricultural scientists would ensure that the production of foodgrains would reach 210 MT by 2000 A.D., at the present rate of annual rate of growth.

However, does it not mean that the lower estimate is based on an abysmally low per capita requirement of foodgrains by that year? Even though it is a fact that per capita availability of foodgrains in the country has reached a figure of 475 grams a day by 1990, do we have to rest content with this meagre per capita availability? Will it not mean that the poor in this country would continue to consume less than even half a kilogram of foodgrains per head per day even by the end of the current century? If by the year 2000 the per capita availability of foodgrains rises to one kilogram per day, the annual requirement for a population of 1000 million will be 365 million tonnes. As we shall see later, this figure could have been attainable if we had taken certain positive steps in the seventies and the eighties But putting the target at 210 million tonnes a year by 2000 only implies

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that the thinking in the official circles is that all that the country can provide is a mere subsistence level of nutrition, at least for a vast majority of her people at less than 600 grams a day per head.

The National Commission on Agriculture (NCA) had estimated that the "supply possibilities" of foodgrains by 2000 A.D. was 230 million tonnes on the low side. The domestic demand by then would have gone up to 205 (low) to 225 (high) million tonnes. Which means that the Commission considered 205 to be on the lower side and 230 million tonnes on the higher side, assumptions which should undergo changes in 1993 in view of the tremendous social and economic changes that have and are taking place in the country, which would certainly result in expectations going higher than they are. This is the reason why putting a target of 210 million tonnes, to this writer's mind, is fraught with possible serious consequences.

In this context, one may quote Dr. C.H. Shah to mention that India's total foodgrains production by that year could go up to 359.40 million tonnes under Projection III. Under Projection II it would be 233.20 MT and under Projection, I it is 186.60 MT. Projection I was based on the observed trends in Indian agriculture, in Projection II he had assumed that irrigation had expanded to its maximum potential and in Projection III, Dr. Shah had assumed that technological improvements are superimposed on Projection II.

As we know today, there have been substantial increase in the area under assured irrigation, and technological improvements not visualised in the 1970s have taken and are taking place, such as biotechnology and genetic engineering. Actually based on these developments, the foodgrains production potential of the country should be treated at nearer 400 million tonnes than 350 MT.

One can point out here, with certain degree of justification, that the statistics quoted so far relate to the earlier "old" periods and they do not have much relevance in today's situation. Well, the reason for quoting the "out-dated" figures is to bring forth the point of view that there should not be any slackening of efforts to raise our foodgrains production on the plea that the estimates made in the late seventies were on the higher side and a lower figure like 210 million tonnes a year by 2000 AD would serve the purpose. This, one would like to stress, is a perilous course of action . Seven years from now, not many countries in the world barring the United States, would be in a position to meet any shortfall in India resulting from failure of the rains and we may not have sufficient foreign exchange at our disposal then for importing large quantities of foodgrains.

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Draft Agriculture Policy

The modified Agriculture Policy Resolution draft approved by the Union Cabinet does not mention any targets, presumably because they do not fall under the framework of the policy. However, the most welcome feature of this policy is the reiteration of the view that "agricultural development in its comprehensive definition is central to all strategies for planned socio-economic development of India". It is reassuring to note that the Government attaches such priority to agriculture even in the prevailing environment of globalisation of Indian economy and stress on privatisation of industries.

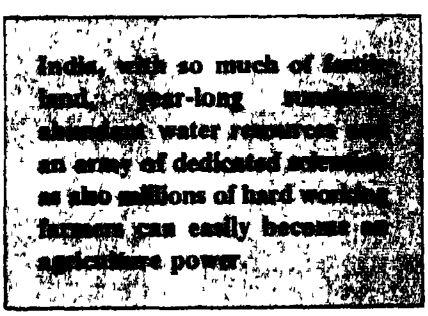
The draft recognises as many as 17 major challenges facing the country's agriculture, of which, to my mind, the first two are central to any talk of further development in this field. They are: "Increasing agricultural production and productivity to ensure food security for the rising population", and "Developing

area of untapped potential, thereby correcting emerging imbalances in growth in eastern, hilly, rainfed and drought-prone areas".

Land holding, fragmentation of land, water resources, tackling problems of malnutrition, processing of agricultural produce, revitalising co-operatives, agricultural research, transfer of technology, improved varieties of seed, agricultural machinery and implements and correcting the terms of trade to make them favourable for agriculture are some of the other challenges listed in the draft.

Improving Yield

Tackling the first one—raising production and productivity is what the scientists and farmers have been doing all these years since the mid-sixties. We have already seen the urgent need of achieving both these objectives. However, it appears unlikely that unless we are able—through research in India or abroad—to break the present yield barrier of a maximum of 7.5 tonnes per hectare in case of paddy and wheat, it is well nigh impossible to attain the production figure of 240 MT, or even 230 MT, by the end of the century.



There is, therefore, imperative need for undertaking research in this field, particularly in hybrid rice, which can give upwards of ten tonnes a hectare In any case, the average yield has to increase from 1.74 tonnes a hectare in respect of rice and 2 40 tonnes in case of wheat. So is the case with jowar, bajra and maize.

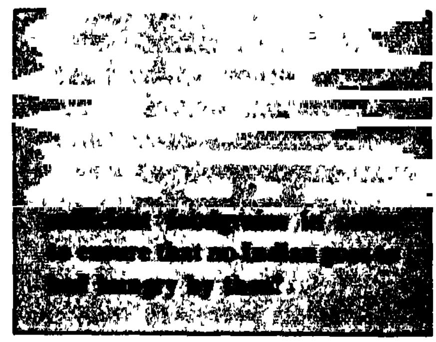
The second aspect is the regional imbalances. Although the green revolution took shape in North-Western India and that region therefore has turned out to be the nation's granary, in the long run other areas, particularly the East and North-East should also come up with better performance. It is time more attention is paid to the East and the North-East. Individual farmers in these areas, under some special programmes, have given very good account of themselves. This writer himself witnessed these sterling performance. However, the focus in Indian agriculture must shift towards the eastern half of India, east of Lucknow to be very precise.

Eminent agricultural scientists have bemoaned the lack of adequate capital investment in agriculture. More so in the context of dryland farming and allied disciplines like horticulture, floriculture, fisheries, dairying and animal husbandry, as also poultry. All these sectors have made commendable progress. However, the potential of these sectors, particularly in the field of export of agricultural produce, is yet to be realised. The draft policy resolution takes note of this

The draft also refers to "revitalising and democratising the co-operatives for providing credit, inputs and extension support as also enhanced marketing and processing". The inclusion of this clause, though desirable, appears merely a ritual. One of course wishes the Government all success in this venture, if it is taken up seriously and in a non-partisan manner.

The policy draft also includes clauses about crop insurance, land reforms, preventing land degradation etc.

However, the most far reaching aspect of the policy is the clear declaration by the Government that it would "endeavour to create a positive trade and investment climate for agriculture at par with industry". It further states: "The objective of Government policy will be to develop effective systems and bestow similar benefits on agriculture as exist in industry". Wisely enough, the clause also has a cautionary note saying that care should be taken to ensure that agriculturists are not subjected to the regulatory and tax collection machinery of the Government.



Besides, there is a positive declaration that "farmers will be exempted from payment of capital gains tax on compulsory aquisition of agricultural land within prescribed municipal limits". This is a most welcome decision and one hopes that when Parliament takes up discussion on the policy draft, this clause will receive unanimous support.

Capital Investment

Earlier, we have stated that agricultural scientists and administrators have expressed despair at the fall of capital investment in agriculture over the years. One may add here that this will result in the erosion, in the long run, of formation of surplus capital in the hands of the farming community. And unless the farming community, numbering several hundred millions in this country, have cash to spare, they would not be in a position to provide markets for industrial goods and therefore employment in the industries. This was brought home to some of us city-based journalists a few years ago in a most palpable fashion.

We were taken by the Khadi and Village Industries Commission in

March 1980 to the distant border areas of Rajasthan. The people there subsisted on, apart from livestock raising and dairying, spinning wool from raw wool provided by the Commission. This gave them a nice return The Commission on its part took the yarn to a central place for weaving into ordinary sweaters.

Now it so happens that these inexpensive sweaters are bought mostly by the poor and marginal farmers of eastern Uttar Pradesh and Bihar. However, because the 1979 monsoon had failed and the country had faced a disastrous drought that year, the farmers of these two regions had no surplus grains to sell and hence no surplus cash in their hands. So very few of them purchased the Rajasthan sweaters The result was accumulation of crores of rupees worth of sweaters in the Khadi Commission's godowns in Rajasthan and it was at its wits end to deal with this situation Hence a Press party for creating public opinion

Transfer Of Technology

The saga of Indian agriculture since the green revolution will be incomplete without the mention of this country suddenly, as it were, achieving near self-sufficiency in edible oils. Till the mid-eighties, India used to import large quantities of edible oil (about a million tonnes a year) from the United States, Brazil and Malaysia, in particular By 1991-92, there was realisation that India was on the verge of attaining self sufficiency and this has been realised in 1992-93, with a production of about 21 million tonnes of oil seeds.

Of them, one notices that rapeseed and mustard have shown a steep increase in production from only 2.60 million tonnes in 1986-87 to 5.84 million tonnes in 1991-92. In 1992-93, the production is estimated at more than six million tonnes. Very few people are aware as how this came about. This writer was witness to a venture by the Indian Agricultural Research Institute (IARI), New Delhi, which I think resulted in this more than two-fold increase in rapeseed/mustard production within only five to six years time.

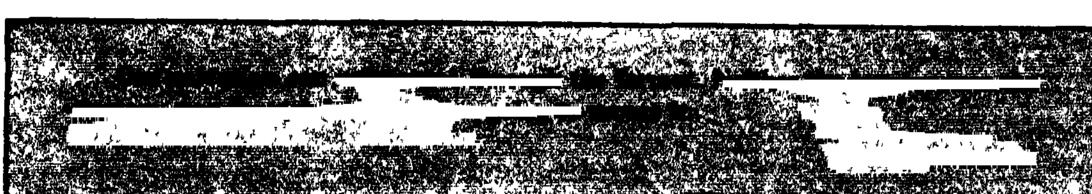
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IARI scientists working with the Transfer of Technology (TOT) Cell, took up the work of popularising the Pusa Bold variety of mustard in the Fatehpur district of Uttar Pradesh The first task was to convince the farmers about the desirability of taking up mustard cultivation in place of wheat in the flood plains of Yamuna, which retained some moisture after the withdrawal of the monsoon floods by late September This writer was witness to such a conference of farmers with the IARI Director Dr A.M Michael and other scientists

The farmers of village Lalauli near the Kora Kanak stretch of flood plains agreed to take up mustard cultivation. The result was that Kora Kanak gave a golden harvest of mustard in 1988-89, The success story spread by word of mouth and when in December 1989, the next season, I visited the Fatehpur district, I was amazed to find that the entire district has turned golden yellow with mustard flower. This was a surprise even for the scientists who had left their homes in Delhi in order to be in Fatehpur villages. Media coverage of this feat by a few of us/journalists had an unimaginable multiplying effect and the entire country, so to say, took up mustard cultivation. Unfortunately, the contribution of these scientists in raising the production of rapeseed/mustard in the country remains to be properly acknowledged by the Government and the people

In conclusion, it has to be stated that India, with so much of fertile land, year-long sunshine, abundant water resources and an army of dedicated scientists as also millions of hard working farmers can easily become an agriculture power in the world. The talk whether India can or should become an industrial or military power first is not relevant India has first to become an agriculture power just as the United States was at one time (and still is) before embarking upon the path of becoming a super power For, as Jawaharlal Nehru had said, "everything can wait, but not agriculture

The author is a veteran journalist



Agriculture Policy Resolution

AGRICULTURAL development in its comprehensive definition is central to all strategies for planned socio-economic development of India. Agriculture being a State Subject will continue to receive the fullest attention of States' Governments and the Centre's role shall be to complement the States' efforts to ensure progress in agriculture and minimise regional imbalances

2. Agricultural production has increased several-fold in the last four decades, but has brought in its wake uneven development, in both research and production, across regions and crops. Therefore, the objectives of the policy will be to accelerate alround development and economic viability of agriculture including horticulture, livestock, fisheries and sericulture It will aim at infusing new dynamism through public investments in infrastructural development, and a much greater impetus for private investments. Farming will be given the necessary support, encouragement and thrust, so that the rural people look to this noble occupation for a future of alround development, well-being and hope

3. Indian agriculture is today faced with major challenges which could be summed up as follows

(i) Increasing agricultural production and productivity, to ensure food security for the rising population.

(ii) Developing area of untapped potential, thereby correcting emerging imbalances in growth in eastern, hilly, rainfed and drought prone regions.

(iii) Meeting challenges of degradation of land and water resources, and emerging ecological imbalance, due to increased biotic pressure on land.

(iv) Diminishing size of land holdings and fragmentation, leading to restricted management option and lower income levels.

(v) Addressing problems of under-employment, unemployment and malnutrition in rural areas through diversification of agriculture and promotion of horticulture, fisheries, dairy, livestock, poultry, bee keeping, sericulture, etc.

(vi) Value addition in agriculture can only be achieved by a concerted thrust being made in increasing processing, marketing and storage facilities. These are imperative for the development of agro-processing industries which are the key areas for development in agriculture.

(vii) Revitalising and democratising the cooperatives for providing credit, inputs and extention support as also enhanced marketing and processing.

(viii) Focussing agricultural research system to develop economically viable and location-specific technologies in rainfed, drought prone and irrigated areas and strengthening institutional framework for farmers' education and training in improved farm techniques.

(ix) Harnessing of scientific research in frontier areas of science and technology for all sections of the farming community.

(x) Addressing technology training and input needs of farm women, farmers living in tribal areas and other disadvantaged sections of rural society, with a view to removing the drudgery and burdens of their lives and augmenting their income.

(xi) Accelerating the development of rainfed and irrigated horticulture, floriculture, aromatic and medicinal plants and plantation crops, with full backup support of processing and mar-

keting, both for the domestic market and for exports.

(xii) Encouraging efficient use of marginal lands and augmentation of biomass production through agro and farm forestry.

(xiii) Increasing the utilisation of irrigation potential and promoting water conservation and its efficient management

(xiv) Providing improved variety of seeds, agricultural implements and machinery and other critical inputs to farmers in or near their village.

(xv) Reviving and strengthening local institutions of the farming community as legitimate instruments of decentralised planning with full participation of the local community.

(xvi) Increasing involvement of non-governmental organisations in agricultural development and village uplift programmes.

(xvii) Correcting the terms of trade to make them favourable for agriculture, thereby increasing the flow of resources and augmenting the rate of capital formation in agriculture substantially.

Agricultural development and research programmes would be dovetailed to these challenges.

4. Realisation of a prosperous and sustainable agricultural economy would require a new policy reorientation. The decelerating trends in capital formation in agriculture would be arrested. The resource allocation regime in the agriculture sector will be reviewed with a view to rechannelising available resources from current support measures towards capital formation and infrastructure building. An economic climate will be created for increasing farmers' own investments and efforts through a favourable price and trade regime.

5. Public investment to accelerate development of supportive infrastructure for agriculture and rural development will be stepped up. Sectors like research, infrastructure development and processing will receive priority. New initiatives like use of plastics in agriculture will receive emphasis particularly for conservation of water resources. Farmers will be encouraged to use alternative and renewable sources of energy for irrigation and other agricultural purposes. The focus of infrastructural investment will be on narrowing regional imbalances and generating more value added exportable surpluses

6. The basic support for agricultural development has been provided by the credit structure assiduously built over the years One important objective of agricultural development will be to ensure that credit flows are enhanced in this sector. All efforts of cooperative societies which are engaged in economically viable ventures are professionally managed and democratically run will be given the fullest support by the Government. Cooperative laws will be modified to strengthen the democratic process and the cooperative movement will be freed from State controls. However, Government will continue to provide financial and extension support to societies in areas where the movement is weak, or is yet to take root.

7. Together with improvements in the marketing of agricultural produce in different regions of the country, and abroad, adequate emphasis will be laid on the development of suitable post-harvest technologies Agro-processing units will be set up in the rural areas for generating employment opportunities. The thrust will be for effective utilisation of agricultural produce, and creation of value addition facilities, close to the production base so as to ensure a better value for the actual producer.

8. Failure of crop, specially in rainfed areas and inability of farmers to absorb the risks of instability in production levels, often result in poor investments. For this purpose credit flow arrangements and comprehensive crop and livestock insurance schemes will be redesigned, with a built-in provision of insulating farmers from financial distress, caused by the failure of rains, and by natural disasters.

9. Government would continue to discharge its responsibility for ensuring remunerative agricultural prices to the farming community. To achieve the above objective, Government would continuously review the price structure and trade mechanism so as to ensure a favourable economic environment. This would attempt to encourage increased capital formation in this sector.

10. India has a natural comparative advantage in agricultural exports because of our lower import need of inputs, our reasonable labour costs, and our diverse agro-climatic conditions. This advantage has to be maximised by giving a special thrust to the exports of fruits, flowers, vegetables, poultry and livestock products and thereby substantially rising our share in the total exports. To achieve the above, a long term policy of expansion and diversification of agricultural produce will be formulated consistent with our overall objective to give a fair share to the farmers.

(Contd. on page 83)

Agricultural Development Some Imperatives

Dr. V.K. Patil

[illegible] These include, inter alia, scientific management of Zonal endowments, micro-watershed development, integrated pest management, recovery of overdue bank loans, development of cooperative marketing facilities at village and taluka levels, use of improved implements, impetus to food processing industry and provision of remunerative prices to the farmers for their produce.

As a producer of food, as an employer of about two-third labour force and as a source of purchasing power for much of the non-agricultural consumer goods and services, agriculture continues to be a vital sector for country's economic development. Thus, need for rapid agricultural development cannot be over-emphasised

Though India's total production of foodgrains has increased between the quinquenniums 1950-55 to 1985-90 by 2.6 per cent per annum, the population has increased by 2.2 per cent annum. All that can be claimed now is that the country has achieved self-sufficiency in foodgrain production which is not a mean achievement. But this cannot be a cause of complacency when the per capita availability is taken into account Even with the impressive record of production of 173 million tonnes in 1989-90, the per capita availability has fallen from 469 gms in 1971 to 44 gms now This is a matter of concern. With 37 per cent of the population living under poverty line, lacking the required purchasing power, how impressive the figures of foodgrain production look? Hence all-out efforts with political will and determination are required to achieve rapid agricultural growth and to make India an economic power.

Some of the areas which need immediate attention to achieve our goal are discussed here.

The crop yield response to the level of application of fertilizers and other imputs may be different from one location to another due to differences in agro-climatic conditions and soil characteristics Similarly, the response of crops for the same level of application of inputs may not be the same from one year to another Zoning of the country in such a manner that variation within a zone is less, is therefore, necessary. In the past, several attempts including that of National Commission on Agriculture (NCA, 1976) and Indian Council of Agricultural Research (ICAR), were made to divide the country into different zones. The Planning Commission has delineated 15 agro-climatic zones based on the physical conditions, topography, soil type, geological formation, rainfal, cropping pattern and development of irrigation and mineral resources of the country

The agro-climatic zonal planning aims at scientific management of zonal resources to meet the increasing demand for the 4 Fs (food, fibre, fodder and fuel) without adversely affecting the status of natural resources and environment Besides broad agro-climatic similarity, planning and operational convenience were the main criteria followed in delineation of these zones District was used as the lowest unit for demarcation of zonal boundaries for administrative and operational convenience. At a later stage, however, it was realised that though the 15 zones broadly represented a particular agro-climatic situation but this will not stand the test of homogeneity when micro-variables are considered for the purpose of detailed operational planning Hence the 15 zones were further sub-divided into 73 sub-zones or sub-regions Given a homogeneous planning base the exercise further proposed to build a detailed resource profile for each of these sub-zones.

The resource profile thus obtained was used to prepare appropriate developmental strategies considering the current level of development and available technological know-how. As an operational aspect of the agro-climatic zonal planning approach, the work of district planning is undertaken by various Zonal Planning Teams. This needs formulation and implementation by respective State Governments

Micro-Watershed Management

About 70 per cent of the arable land in India (about 144 million ha) is rainfed and depends on natural precipitation for crop growing. It has been estimated that even after the exploitation of entire irrigation potential in the country, by around 2020 AD, about 50 per cent of the arable land will still remain rainfed It is observed that yields under rainfed conditions have remained low because of aberrant weather conditions and soil related constraints Hence, given the climatic and topographical constraints and the resource base, the prime strategy of agricultural development should in-

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volve land and water resource management on the basis of watershed. Micro-Watershed Management involves total resource conservation including soil and water, forests, pastures, horticulture and crop husbandry. The watershed treatment requires contour bunding, broadbed and furrow system, terracing, land levelling and land shaping, water harvesting structures (like nalla bunding, check dams) and soil conservation structures (like gully plugging contour bunding, ravine arresting structures).

Similarly, the uncultivated lands including cultivable waste, other fallows, degraded forests lands, common prosperity grass lands need different treatments. This may include social forestry, agro-forestry, dryland horticultural crops, fodder development and silvipasture. Some of these programmes are presently being implemented under different schemes such as soil conservation, comprehensive watershed development programmes, EGS, RLEGP, DPAP, etc. However, the multiplicity of the schemes involving the different programmes is detrimental to the effective implementation of the approach. It is also essential to have community participation in the implementation of this approach. The success of voluntary organisations in villages like Adgaon, Palaskheda and Naygaon (Maharashtra State) bear ample testimony to this fact. This programme needs priority and massive investment to achieve the target. Similarly, a long term plan also needs to be worked out

Integrated Pest Management

It is true that minimising available losses is one way of enhancing foodgrains producton. Crop losses are caused by various pests and diseases. In India alone, annual crop losses on account of pests and diseases have been estimated to be Rs. 6,000 to Rs 7,000 crore. Though the use of pesticides per ha in India is less as compared to other developed countries, there are pockets where it is used on a higher scale As the pesticides leave residues that persist in the environment and contaminate the food chain, overusage of pesticides is a potential environmental hazard. The emphasis in tackling the loss caused by pests needs an orientation on the basis of constraints and new knowledge. It is now realised that no single method of pest control can give any everlasting solution. Similarly, it is observed that when grown over a large area, resistant varieties give away.

Of late, it is being increasingly realised that there is an urgent need to evolve a coherent pest management programme that is environmentally safe and yet able to control loss The concept of Integrated Pest Management (IPM) has emerged out of this

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concern. The concept of IPM implies judicious use of all the available alternatives in a compatible manner so that pest population does not cross the level of economic threshold. The most important components of alternatives include biological control, agronomic manipulations/adjustments and use of pathogenic micro-organisms. The implementation of IPM measures is possible only if the criteria necessary for appropriate decision making are developed. The progress towards this mainly depends on wider application of the economic threshold concept which in turn requires proper and effective monitoring and forecasting of population development of pest organisms and accurate knowledge about the relation between pest pressure and its development with time and extent of resultant crop losses. Considerable research is, therefore, required to develop the basic data needed to elucidate the complex relationships more clearly and translate them into parameters which are useful for practical purposes. The whole set-up, therefore, needs vast allocation of

funds on priority basis. The research base available needs strengthening in respect of manpower and infrastructure.

Recovery Of Loans

The requirement of finance in the modern agriculture with costly imputs cannot be over-emphasised. Following the recommendations of the All India Rural Credit Survey Committee appointed by the Reserve Bank of India, an integrated scheme of rural credit was introduced in the country to expand the role of cooperatives in rural finance. As a result the cooperative credit movement received a boost in 1954 An important conclusion of the AIRCSC was that the cooperative system was the best suited for dispensing agricultural credit in Indian conditions This spurred the Central and State Governments to give a further impetus to the development of Cooperative Credit Institutions As a result of this, the cooperative credit structure now has a strong network of primary Agricultural Credit Societies (PACS), District Central Cooperative Banks (DCCBS) and State Cooperative Banks along with State Agriculture and Rural Development Banks for dispensing short, medium and long term credit to the members.

Despite this strong and impressive infrastructure the share of cooperatives in the field of agricultural credit has come down from 80 per cent in 1969 to 42 per cent in 1987 and is likely to slide down further to 40 per cent in the next five years. The main reason for this reduced share of cooperatives in credit is the implementation of the policy of multi-agency system by involving Nationalised Commercialised Banks and Regional Rural Banks (RRBs) in purveying loans for agriculture and allied activities. As a result, there has been a spectacular expansion of the network of the commercial banks in rural areas. In spite of the tremendous branch expansion all the three types of banks are plagued by the problem of overdues. In the wake of the rapid branch expansion and credit supply by the commercial banks and their involvement in the poverty alleviation programmes, because of failure to plan and manage effectively, the overdues of commercial banks amounted to 43 per cent by 1986 The overdues of the Regional Rural Banks and Primary Agricultural Credit Societies accounted for 51 and 41 per cent respectively in that year The mounting level of overdues of the cooperatives has been a cause of great concern resulting into crippling the cooperative credit structure.

Apart from the defective appraisal of loan applicatons and inadequate monitoring of credit utlisation, there are reasons such as the impact of natural calamities, wilful defaults, misutilisation of loans and weaknesses in the recovery prodecures for this state of affairs It is imperative that the overdues problem is tackled in right earnest with determination Improvement in the recovery performance is vital not only for recycling funds, but also for improving the financial health and the credit absorption capacity of the cooperative credit institutions It has been suggested that wilful default in the repayment of cooperative loans should be treated not merely as a civil misdemeanour but as a criminal offence and should no longer go unpenalised and should attract deterrent punishment under the criminal law. This needs to be implemented scrupulously with determination to improve the efficiency of the credit institutions as well as to make the farmers act responsibly in repaying the loans. It is also necessary that the working and management of these institutions should be free from political interference and supression/dominance. The Goverment has adopted the policy of waiving loans upto Rs. 10,000/- This policy needs careful consideration taking into consideration the long term effects it will have in the field of agricultural financing.

Marketing

Marketing holds key to the prosperity of the farmers. It is not only essential to obtain higher yields but it is equally essential to market the produce at right time and place. It is a matter of common knowledge that when there is a glut in the market the prices fall utimately leading to loss to the producers It is also established that there is a big chain in between the producer and ultimate consumer and the middlemen eat away a big chunk of the price paid by the consumer. It is, therefore, necessary that a strong base of cooperative marketing is eastablished at village and/taluka levels to undertake the marketing of all the marketable surplus of the producer for obtaining fair price for the produce as well as to do away with the middlemen

Improved Implements

Improved agricultural implements,

tools and machinery are some of the important inputs in agriculture for increasing production, reduce cost of operation, maximise efficiency of other costly inputs by their proper and timely application as well as for reducing the drugery in farm operations and generating more income. In India majority of the farmers are in the marginal and small category and their holdings are below two hactares and that too fragmented in small pieces prohibiting the use of machines It has been established that if weeding and hoeing are not done in time, the crop yields may be affected to the extent of 25 to 27 per cent depending on the crop It is, therefore, necessary that the following measures are adopted for wider use of the agricultural implements by the farmers:

(i) The farmers should be educated in this respect through a strong extension machinery

(ii) Training programmes should be organised for farmers, village artisans and mechanics in operation, repair and maintenance.

(iii) Credit and subsidy should be made available to the farmers and after-sales service provided.

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(iv) Custom-hiring centres should be established to enable the small farmers to hire these implements.

(v) Spare parts should be made easily available.

Food Processing

The potential for the growth of food processing industries in the country is tremendous and India can emerge as a world leader in this sector. India has a vast sea frontier and sea resource, a favourable climate for the production of a large number of fruits and vegetables and cereals and it has the largest live stock population for meat production. India ranks second in production of fruits and next only to China in the production of vegetables. This situation can be exploited to produce a variety of processed food items in large quantities for export purpose, thereby earning valuable foreign exchange and generating vast employment opportunities. At present the quantities of various processed foods produced in the country are insignificant as compared to the available potential in this respect. It is, therefore, essential to take following steps for the development of this sector

(i) The existing incidence of direct and indirect taxes, duties and other levies on processed food items should be reduced or abolished as this would stimulate demand.

(ii) Grading standards should be developed

(iii) Steps are required to modernise the packaging industry

(iv) Cold storage facilities should be established on wider scale.

(v) An effective market promotion needs priority

(vi) There is an urgent need to provide adequate specialised transport facilities.

Remunerative Prices

The face of Indian agriculture is undergoing a change rapidly It is becoming more and more surplus oriented from the traditional subsistance level farming The farmers must, therefore, be given incentives in the form of remunerative prices for their produce. This is essential in order to induce them to produce more as well as to retain them in the business. There is no denying the fact that for substantial increase in the agricultural production and productivity, the farmers must be ensured of remunerative prices for their produce through an appropriate price policy. The policy should have a crucial bearing on farmers' income and on the adoption of improved technology, incrased production and rural capital

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formation It should seek to protect farmers from wide fluctuations ensuring an adequate margin over cost. Efforts are needed to maintain prices at levels which will increase the efficiency of resource use. To justify the lower prices for farm produce, it has been argued that because farm production has gone up as a result of substantial investments by the public exchequer, the benefit of higher production should accure to non-farmers as well. But an analysis has made it amply clear that in real terms the farmers have been left poorer after inflation adjusted total value It is, therefore, essential to adopt a pragmatic price policy for the farm outputs and inputs which will enable the farmers to save and invest in their land for increasing productivity.

The forest wealth is one of the most important assets of tropical countries. Of late, however, there has been a steady decrease in forest cover in the country leading to many problems including environmental deterioration. In India the forest cover is about 20 per cent of the total geographical area which according to the environmentalists, should be 33 per cent to satisfy various needs.

Development of agro-forestry, therefore, deserves high priority considering the importance of eco-system and fauna, requirement of timber, fuel wood and fodder and the forest produce. Massive allocation of funds in this direction is justifiable.

More Allocation

The country is always confronting a host of serious problems relating to region, religion, caste and language, allocation of river waters, rehabilitation of project affected persons, etc. It can ill-afford to add another to this list in the form of rural-urban confrontation There exists a general misconception that large funds from public exchequer have been invested in agriculture and rural development and as a result the farm sector has benefited to a large extent thereby improving the living conditions of the rural masses But an analysis of the data in respect of total gross capital information and total capital formation in agriculture shatters this claim. The share of capital formation in agriculture has declined from 17.2 per cent in 1979-80 to 12 3 per cent in 1988-89. A cursory look at the Plan expenditure in different Five Year Plans reveals that there has been a decline in the expenditure on account of rural programmes i.e agriculture, rural development and irrigation from 37 per cent in the First Pan to 23 9 per cent in the Sixth Plan and further to 21.2 per cent in the Seventh Plan A country like India where 75 per cent of the people depend on agriculture for their livelihood cannot afford to neglect agriculture and rural development sectors for achieving the goals of planning It is essential, therefore, to allocate more Plan funds for these sectors

India's wealth lies in its vast manpower as well as its rich natural resources. Full exploitation of both these resources is essential in order to achieve the goals of planning rapidly. Agricultural Universities in different States are actively engaged in preparing well trained graduates and post-graduates in the field of agriculture and allied subjects for undertaking research and extension activities for rural development It is, therefore, incumbent upon the State Governments to strengthen these Agricultural Universities by providing sufficient funds and infrastructural facilities. The farmer can no longer afford to function as a grower and harvester, relying merely on his instincts and experience. He should be enabled to emerge as a full-scale farm manager equipped with entrepreneurial capabilities and skills if faster economic growth is to be achieved □

The author is Vice-Chancellor, Marathwada Agricultural University.

(Contd. from page 78)

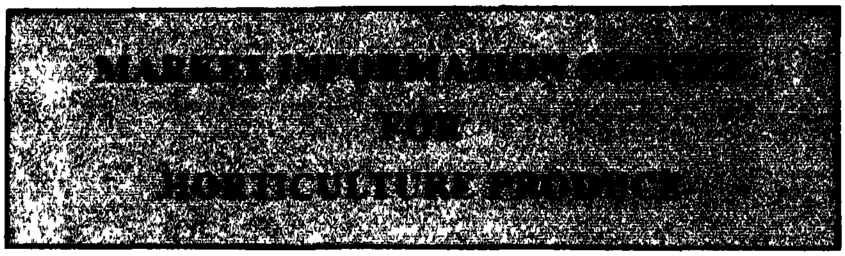
11. Government will endeavour to create a positive trade and investment climate for agriculture at par with industry The objective of Government policy will be to develop effective systems and bestow similar benefits on agriculture as exist in industry. However, care would be taken to ensure that agriculturists are not subjected to the regulatory and tax collection machinery of Government. Further, farmers will be exempted from payment of capital gains tax on compulsory acquisition of agricultural land within prescribed municipal limits

12. Indian agriculture is basically dependent on the endeavours of small and marginal farmers. Land reforms will be so pursued as to channelise their energies for achieving greater production

13. Government attaches the highest importance to the quality of the country's land and reclaiming degraded lands will be given the highest priority Land will be developed according to its quality and potential in order to fulfil the needs of our growing population. In order to develop the vast rainfed areas of the country, conservation of rain water will be promoted by vegetative conservation measures through watershed management to bring about integrated development with the help of self-regulating beneficiary groups consisting of landless agricultural labour and small and marginal farmers

14 The Government of India trust that this statement of Agriculture policy will receive the support of all sections of the people, and promote enhanced agricultural growth, resulting in the generation of higher incomes in the rural areas. This will lead to improving the quality of life in villages, bridge the gap that exists in access to education, health and other services between the rural and urban areas, and create gainful employment opportunities on a self-sustaining basis □

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A Centenary Tribute

Mahalanobis : The Scholar Patriot

"PROF. Mahalanobis today stands as a colossus in the field of Indian intellect In celebrating his centenary, we pay homage to a person who worked tirelessly for the development of our country and symbolised India's efforts at building a modern nation He was also a great inspiration to bright young people from India and abroad and it was his dynamism that turned the Indian Statistical Institute into an intellectual power house

Prof Mahalanobis was a scholar, a patriot and a person of immense sensitivity to developments around him He was a lifelong friend and admirer of Gurudev Rabindra Nath Tagore and was amongst the few who really understood the import of the poet's lectures on nationalism. He also played a prominent role in shaping the social thinking of the society around him and in the shaping of ideas of the Brahmo Samaj of which he was a member

Prof Mahalanobis can be truly said to be the Father of Indian Statistics. He founded the Indian Statistical Institute in 1931 and devoted his energies to attracting the finest talents and expertise in developing the Institute.

Prof. Mahalanobis's association with the Indian planning process helped India adopt a systematic and scientific approach to development earlier than most other developing countries He saw that no country of our size and at our level of development facing unemployment, poverty and ill health, could develop without a clear identification of objectives and the best use of scarce resources for the maximum benefit of the people The planning process was his solution to this optimisation exercise

I would like to emphasise that our new economic policies which visualise a greater role for the private sector in our growth process also emphasise the importance of the role of the State as a crucial factor in our development The State does not wither away simply because a little more investment comes from the private sector Unemployment, underemployment, undernourishment, ill health and illiteracy, unfortunately continue to plague large sections of our people and the Government has to devote greater energy towards elimination of these problems

In the last two years Government has taken a major initiative in bringing about a reordering of the roles to be played by the public and the private sectors. We have introduced new industrial trade and fiscal policies to provide incentives to the private sector to foster rapid growth and bring our country to the forefront of technological attainment Our fiscal and monetary policies are designed to eliminate the fiscal deficit and to convert it to a surplus so that the much needed resources for development can be generated while at the same time inflation is curbed.

The problem of resource availability has to come to the centre-stage as the most important single issue affecting our developmental effort The demands on the limited resources available to the State continue to increase and it is not easy to find a solution that can accommodate all interests while at the same time maintaining a forward momentum in the economy

I am sure that if Prof Mahalanobis were here today, he would have worked to find an optimal solution to this problem In this gathering, present are some of our most distinguished economists, planners and statisticians and it will be a fitting tribute to Prof. Mahalanobis's memory if those of you who have an interest in these matters could work on ideas to help the country in dealing with this subject Perhaps the ISI could organise some work on this vital issue

Problem of expenditure reduction is not simple either. While on the question of elimination of export subsidies, there is little controversy, with respect to other subsidies such as to agriculture, greater deliberation and determination is called for. We have, for instance, allowed some price concessions again for fertilisers this year as we found that grave imbalance in the consumption of different types of fertilisers appeared to be occurring which needed to be corrected This was not at all

anticipated two years back. Since 1990-91 we thought if you reduce, you reduce, and that is good, but it is not so If you reduce in Nitrogenous fertilisers, the input of Nitrogenous fertilisers goes up, if you don't reduce then the Potassic fertilisers become much more costly and there is a total imbalance in the input given to the fields, to the land, which means over a period of four or five years there can be permanent damage to the humus content and other structure of the agricultural land. So, it is a very serious matter and, therefore, we have to consider it afresh and bring the balance back.

Expenditure on the Public Distribution System will continue to be necessary as part of our anti-poverty programme but it needs to be ensured that the poor do in fact receive the benefit of this scheme These are the kind of issues of equity, balance and fiscal correctness that we have to address and find practical solutions to It so happens that in the wake of worldwide changes which no one can resist, problems of the people including developmental problems have passed into a new era of finding pragmatic workable solutions which seek to test out which solution works best in resolving a particular problem This is the kind of pragmatic approach at least for some time which we will have to take until we have the strength of what is generally called an ideology, the strength of an ideology, which needs to evolve and until that evolves we will have to be pragmatic, may be hit and miss, but at the same time learn from our own mistakes and experiences and that kind of pragmatic approach has become necessary in the interregnum. You cannot close your eyes to this need and stick to things which are no longer worth sticking to

We have over the last two years attempted to apply this strictly objective approach to our own basic problems which remain today as they were in the early days when Prof. Mahalanobis grappled with them. Growth, equity, employment and poverty reduction remain our most fundamental objectives now as they were decades ago when we undertook this pioneering work These are hard realities today They are neither to gloat over—to changes that have come and the changes that we have to undertake in order to meet the changes that have come—nor to bemoan but to manage and turn to our advantage That is what we have to do when these very large massive worldwide changes come You just cannot stand still and let them come, not do anything about it, you cannot stick to things which will not stand in the face of all these changes.

We must ask what we have learnt in these decades and how we can move forward in the years ahead. Prof. Mahalanobis, a lifelong student, would have been keen to know the answers today if he had been alive. Let us at least do that. Imagine—what he would have done—to the extent our imagination goes and do it. We could emulate him profitably, particularly at this time when notwithstanding some unavoidable all-knowing public postures you do not see too many persons claiming to know all the answers So, we go back to the formula 'Pranipataina Pariprashnaina Savayah' Pranipataina—here, the people are the Guru, so we respect them, Pariprashnaina—we investigate them, we question them about their problems and aspirations; Savayah—and in the meanwhile all the time we serve them. These are the three old combinations in the new context and there is no other way we can serve this country " □

(Based on Prime Minister, Shri P V Narasimha Rao's speech at the Golden Jubilee Celebrations of the ISI and birth centenary of Prof P C Mahalanobis in Calcutta)

Women In Panchayats

S.V. Saran

Women's participation in election in an active role as candidates for office is a revolutionary step. It will speed up the pace of modernization. The author feels, it will help the process of change for equality among sexes and individual dignity.

THE Seventy-second Constitutional Amendment Bill adopted by Parliament in December, 1992 and effective as an Act from the 24th of April, 1993, is a landmark in the constitutional history of the country. It has sought to give, may be partially, a concrete shape to the vision enshrined in the directive principles of the State Policy (Art 40) that the Gram Panchayats should be 'units of self-government' and the State should, mandatorily take steps to organise them and give them necessary powers and authority to enable them to function as such units. The responsibility to organise and empower these Panchayats suitably rests on the State and as ours is a federal set-up and local Government, including village administration, is in the State List (Entry 5, List II), it was left to the State legislatures to have necessary enactments for the purpose

Bihar was the first State to have enactment in this regard even before the Constitution came into existence and Bihar Panchayati Raj Act has been in force since 1948. The change brought about by the Constitutional Amendment Act is that the Panchayats now have constitutional status and certain vital provisions have been made which no State Government can ignore while having its own laws for the purpose One of such provisions relates to reservation of seats for women on the Panchayat Bodies—at the village, intermediate (wherever such a level exists) and the district level to the extent of not less than one-third of the total seats This is a provision of far-reaching consequence and although it came into force, unless it is backed by popular public support at all levels, there is an apprehension that the provision may not yield any meaningful result, as is the case with several other constitutional provisions.

There are several question marks involved here Is our society ready to accord such a position to women in public affairs? Are women ready to accept the responsibilities entrusted to them? Do they have the necessary wherewithal—education, knowledge and experience to carry on the responsibilities? Will the dominant groups at the Panchayat level use them and further consolidate their position to the detriment of general interest?

Such questions are neither hypothetical nor unreal, given the social mileau which denies equal position to women in several areas of activities. Although numberwise they are almost equal (for 1000 males 923 females in the country as a whole and 912 females in Bihar) they lag far behind in education. While male literacy is **63.86%**, female literacy is only 39.42% in the country and the position is much worse in Bihar and Rajasthan. Bihar's literacy rate is 38 54 per cent and while male literacy is 52 63%, that of female is only 23 10% In several districts, the position is bleaker May be, some of the women who get elected, are illiterate Does it augur well for the Panchayati Raj system as 'units of self-government', as envisaged in the Constitution?

The provision in the Constitutional Amendment Act makes it clear that the Panchayats are primarily seen as improvement for development. Art 243(G) lays down -

11th Schedule lists 29 subjects—which are to be looked after by the Panchayati Raj institutions. These are developmental in nature from education, health, sanitation, communication, to agriculture, minor irrigation, small-scale industries Important as they are in a developing society, the activities to be assigned to the Panchayats are not adequate enough to enable them to function as units of self-government. What the Panchayats get is partial governance—Revenue administration, judicial system, civil supplies, crime control, etc. are subjects of immediate importance to the local people. These aspects are not covered in the Amending Act The detailed legislation is to be done by States and if they so wish they may include all or

some of the aspects as may be considered appropriate in the legislation. While sitting on Panchayati Bodies at different levels, women members will play an equal role as their male counterpart in considering these subjects and taking decisions on them.

It is to be recognised that women in the rural areas have been quite in touch with things since time immemorial. Much against a generally prevailing notion among elite these women have been confined to the walls of their homes; they have been playing a major role in matters relating to various activities revolving round the home and their village life. They know as much about irrigation and seeds; sanitation and drinking water; education and health as men folk and if men are supposed to take a rational view and sound decisions on such matters, there is no reason why women would fail to do so. This is no doubt a fact that because of *purdah system, women in general* have not been coming out in public and airing their views But this does not mean that they have no idea of right or wrong; proper or improper; practical or impractical. In most cases, it is women who manage the household affairs. They participate in decision making and are fully capable of weighing their pros and cons—be it an economic issue, a social problem or inter-personal relations. The subjects, thus, which will be coming up before the Panchayats will be known and familiar and women are well conversant with their purport in the local setting. Once, out of purdah they can express the views as their male counterpart. Given an opportunity, they can do as well as males in any activity. This has been well demonstrated and hardly needs any proof.

Participation

Women can play an effective role in dowry cases; in resolving family disputes and bringing about amicable settlements in States where Nyaya Panchayats function. On the developmental side, supervision of the functioning of village schools and health centres, dairy and horticulture, sanitation and drinking water arrangements, street lighting, running of welfare programmes can be very well looked after by women members on the Panchayat Raj Bodies. It will, therefore, be useful to keep them on various committees dealing with such subjects.

What is needed is education and training. Experience, of course, will come with time. Particular care will have to be taken in respect of women from amongst Scheduled Castes and Scheduled Tribes. But for the reservation, it would not have been possible to pursuade women in large number to come out and participate in the management at the local level, knowing the nature of politics in education. Reservation in a way will force them to come out and once they come out of the shell, their creative energy will be released to the advantage of the community at large. In this sense, women's participation in election in an active role as candidates for offices is a revolutionary step and will speed up the pace of modernisation It will help the process of change for equality among sexes and for individual dignity and self-fulfilment.

Bihar's case is particularly important not only because of its earliest enactment on the subject, but because of its wide range and progressive features which already exist. Extensive amendments were made to the Bihar Panchayati Raj Act, 1948 and the Panchayat Samiti and Zila Parishad Act in 1990 and provisions for reservation, timely and regular election at an interval of every five years; constitution of State Finance Commission, State Election Commission, State Election Tribunal, etc. There is also provision for Gram Kuchery in Bihar which does not exist in several States. The role of Panchas in Bihar is, therefore, very vital in local governance and women Panchas at different levels will be exposed to wider areas of administration as compared to women in other States as at present.

Government's Role

It is the responsibility of the Government and community to help this process by encouraging women through appropriate educational and training programmes. Adult education programme assumes greater significance in this context and it is necessary that all possible steps be taken by governmental and non-governmental agencies to have full literacy within a shortest possible time-span. Once women are literate, much of the difficulties in appreciating technical and large aspects of the functioning of the system will be over.

Apprehension of the dominance by powerful groups in Panchayats is not misplaced. It is only sound public opinion that can deter this Social and political activists and women organisations have a role They must instil sufficient confidence among members of the Panchayats, including women, so that they rise to the occasion and preserve their freedom of thought and expression.

Training assumes paramount importance in this background It is understood that the Union Government is contemplating the setting up of a National Institute of Training for functionaries of Panchayati Raj institutions This is a welcome step While it may not be physically possible for elected representatives from all over the country to come over to the institute, such an institution may function as the parent body and provide resource personnel to State Institutions. State Institutes should be suitably equipped and staffed and trained hands may

(Continued on page 21)

Development From Within

Amitava Mukherjee

THE Seventy second (Constitution Amendment) Bill 1991, seeking the establishment of multi-tier elected Panchayats at the district and sub-district levels, is both the prime instrument of decentralization at the grass-roots levels for development, and a mechanism to ensure optimum use of scarce resources for development at a time when resources are very scarce following the structural adjustment measures taken to correct the imbalances in our economic system

When one talks of optimum use of resources, there are several dimensions to the issue Firstly, it is used in the sense of a more effective utilisation of facilities or functions created out of resources already expended. If resources have been deployed to open primary schools, for example, it is essential to ensure that teachers come to schools, and take care of the children entrusted to them, if public health delivery system has been created, it is of no use to the sick and the needy, if medical personnel and medicines are not available in time The success of Kerala in containing population growth rate to 13 98 as against a national average of 23 50, is attributed to the State's success in ensuring that primary education and primary health are delivered to the people, while primary education, particularly spatially widespread health facilities have ensured delivery of family planning services when sought by the people (supply).

Sadly enough this lesson has not been learnt by other States, and these services continue to be poor though the resources expended on primary education and health are substantial in absolute terms The combined Plan and non-Plan expenditure of all the States taken together on primary health and primary education was a staggering Rs. 65,000 crore during the last decade Yet most of the school teachers do not attend schools and do not teach as they ought to and the health workers do not provide relief to the needy

Poor delivery of education and health facilities is caused by, amongst others, lack of vigilance by the local people; local population has no control over them, their salaries are paid by their respective departmental chiefs without having regard for the quality and quantity of services rendered In a country as vast as ours, where some districts are even larger than countries in other parts of the world, it is impossible to exercise such vigil and control from remote State headquarters. More importantly, the attitude of these functionaries is best summed up in the trite saying, "We are not your servants" spoils the scenario irreparably However, it was noticed that once Panchayats have powers of superintendance as was demonstrated by the Mandal Panchayats in Karnataka, attendance of teachers in schools and of medical staff in health facilities improved dramatically almost overnight and the quality of services rendered was upgraded markedly

Secondly, optimum use of resources implies a more intensive use of available resources and reduction in leakages There is now a widespread acceptance of the fact that subtantial portion of resources expended do not reach the targeted sectors and/or target group because, inter alia, they are deployed "from above", through a "non-accountable" bureaucratic machinery, that is generally insensitive to people's needs, only interested in reaching quantitative targets, is impersonal and works on a fundamentally flawed premise that "the people do not know what is good for themselves". Decentralisation in governance, planning and plan implementation, through the Seventy second Constitution Amendment can only ensure a better utilization of resources, acountability in resource use, reaching qualitative targets, and deliver what the people feel as their needs A bureaucratic machinery which is geared to maintain law and order, cannot bring about such development.

Third, it is often complained that planning is a "cut and paste" exercise, and the local level economies receive far less than what they demand/need in terms of resources. Without joining issue to the continuing debates, it is apparent that when resources received are less than what are demanded, the need to be most efficient in expending such resources

in sectors where they are needed most, can hardly be over-emphasized. Such efficient deployment of resources is possible only through elected local level Panchayats, who have the required flexibility and upto date information to carry out the balancing act with the consent, concurrence and acquiescence of the people and we are at once subject to the checks imposed by local level elections where non-performance will take the beating.

Fourth, in spite of the awesome pressure to reduce deficits and redeem debts, it is as yet not true that there is paucity of all resources. Resources for development, include but are not restricted to, soil, water, sunshine and bio-mass Except for bio-mass, resources are available in abundance which has led, inter-alia, to a reckless misuse and over use of much of these precious resources. It is not paucity of resources, in this larger sense, but the failure of the bureaucracy and technocracy to integrate men, these resources and technology into the tool-process which has caused so much of deprivation, hunger and stagnation in the Indian economy.

The Need

For a proper scientific use, conservation, and regeneration of these resources, the vast power of the scientific capabilities, such as those of remote sensing for mapping the ground resources of soil, water, vegetation and mineral, which can totally transform the character of our development, planning and economic endeavour, should be put to good use. Proper planning and plan implementation for the use, conservation and regeneration of these resources, however, have to be local area based. That, in turn, is diametrically opposite to sectoral planning that has almost exclusively been relied upon by us thus far. Sectoral planning "from above" outside the framework of local area planning is destructive of resources. And sectoral compartmentalisation of development efforts through departmental empires is the arch enemy of efficient use of resources.

To get rid of sectoral planning—"from above", elected local institutions, have to be built as provided for in the Seventy second Amendment. Area Planning will have to order local priorities, optimize on existing investment (like improved performance of primary school teachers and medical personnel, as was done in Karnataka by the Mandal Panchayats) and mobilize local resources It has to rest on an elected local level organization, which can lead to a people-led development, integrate men, resources, (namely 'stake' in development, idealism, ideas, and material resources) and technology into the tool-process more efficiently

The Theme

The Seventy second Constitution Amendment Bill, provides for elected bodies which are downright rationalisation to bring about development "from within" It is too well known to be laboured here that the objectives of economic endeavour has changed (with the flux of time from "growth" (in income), to "growth with stability", then to "development" (improvement in the Quality of Life Index), to "sustainable development" and now "development from within", which encompasses ensuring "livelihood entitlement" The elected bodies at the local level, under the Seventy second (Constitution Amendment) Bill, will be best suited to spearhead this "development from within" A suggested scheme of how to initiate a process of planning for "development from within" is given in the subsequent paragraphs

The four distinguishing features of the present proposed planning process, would be: (i) an identification of what can be done primarily by the villagers themselves in the village if the villagers get organized around gram panchayats, which may be called "peoples sector"; (ii) an assessment of what can be done in the village on a commercial basis by availing and repayment of credit/loans, which may be called "bank sector", (iii) an understanding of what can be done in the village only with Government subsidy, which may be called the "Government Sector", and (iv) an assessment of what can be done by some combination of more than one of the foregoing sectors, that is, the villagers, banks and Government which may be designated as the "combined sector"

Before we briefly comment on each, there are two elements that have to be emphasized here, time and space. Thus, firstly, there will be a time frame for completing a group or cluster of schemes and therefore, the task that can be completed in one year will be included in the "Annual Plans", those tasks which require upto five years will be in the 'Five Year Plans', and those requiring longer periods, say, fifteen years or so, will be in the 'Perspective Plans'

Secondly, planning at local levels will be integrally concerned with locating activities in space, namely, spatial planning, which will lead to efficiency in use The importance of this is at once realised if one surveys towns and various market centres, where, in many cases, no fixed place exists for various activities resulting in dislocation A classic example in point is that of roads being turned into the market places even in large cities like Calcutta And in villages, a road from the village to the nearest metalled road leading to the town may exist, but no road or path worth its name exists for movement of men and material within the village itself

Having said so, it would be a rewarding exercise to deal with each of the "three sectors" mentioned above separately for discussion

(i) The People's Sector: The People's Sector may include: (a) *earmarking one or more sources of water, such as ponds, in a village for the supply of clean drinking water to the villagers, which will not be used for any other purpose such as bathing, washing, cleaning utensils, and washing animals*: (b) digging pits for defecating and covering them with earth or ash which in addition to preventing health hazards will also be used to develop compost for use as manure in agriculture; (c) construction of compost pit in each household; (d) maintaining village roads and bundhs, including effecting minor repairs. (e) understanding and implementing some elementary health measures particularly for child welfare and maternity care; (f) motivating the educated in the villages to eradicate illiteracy from their own villages; (g) developing a movement for motivating villagers to use locally produced goods like cloth, oil, etc, which will help in reviving rural industries and generate employment, (h) organization of regular "discussion—meetings" of the villagers for collecting and recording information for planning and monitoring plan implementation of their own villages, and (i) above all, developing village level organisation, particularly of the deprived, of the weaker sections of society, of the workers and, of the women, which would provide the much needed institutional arrangement for assessing people's need and for articulating the collective wisdom of the masses, all of which are so vital for decentralised planning.

(ii) Bank Sector: What can be done with bank credit, (bank sector) is a long list, and several schemes are already in operation relating to. (a) crop loan; (b) assistance for building minor irrigation works; (c) assistance for building community warehouse in each Gram Panchayat; (d) finance for village industry; (e) finance for pisciculture; and (f) financial assistance for small trade, including cycle van, cycle repairing shop, retail trading in consumption goods and *the like* However, some corrective action needs to be taken.

The principal task in this regard will be to prepare a comprehensive list of all households who have the capacity to undertake activities with the assistance of bank finance. The Panchayats can then, with help and assistance from the banks, prepare village-specific schemes for presenting them to the banks for doing the needful and develop their own capability to at least monitor the disbursement, utilization, and equally important, repayment of loan (with interest thereon) to the bank concerned in time It will be wiser for banks also to operate, if it can involve the Panchayats, as then the task of credit servicing will be so much the easier and, at once, less time consuming and cheaper. It would be extremely important for the Panchayats to ensure that schemes where Government subsidy is available as margin for institutional finance are fully utilized and fully integrated with the 'bank sector' component of local level plan.

(iii) Government Sector: In planning for utilisation of Government help, caution has to be exercised to avoid development of "dependency syndrome" on Government help. This by all accounts is a very difficult task and to concretize it for each specific area should be one of the points of emphasis in planning process aimed at in development from within. Subject to the foregoing, the following are worth considering.

The tasks that cannot either be performed by villagers alone or with bank help, has to be clearly identified. 'Land Levelling' is an example in point. Technically speaking, what is required to be done to level undulating land requires only labour and simple tools like spades, which villages have in abundance, yet these resources cannot be applied directly to land on account of private property rights. Individuals, or a group of individuals, whose private property rights are guaranteed by the Constitution as by Law established, neither have the requisite labour power nor the orientation to till their land. The principal source of labour rests with the landless agricultural labourers/ households, who can provide the required manpower for levelling land, owned by others, provided they are compensated (with wage) in exchange for the labour so expended. Under the prevailing conditions, therefore, planning should induce the landowners to take the initiative: (i) to organise all the owners of land in an area to agree to invest in levelling the land owned by them: (ii) to work out the trade-off between levelling the land against alternative returns which could accrue to them from similar efforts, or investment, in alternative ventures; and (iii) to explore the possibilities of mobilizing the required resources from their own funds or from banks for land levelling, provided the benefit—cost ratio appears favourable to the landowners.

Such problems emanate from the dichotomy of the separation of ownership of land and ownership of labour power. Had the actual ownership of the lands been vested in the labourers themselves then, in the main, these problems would have been circumvented automatically. In consequence, activities such as land levelling which bring about a permanent improvement in land-assets, are not commonly in practice. Thus high and undulating lands are often either not cultivated or cultivated improperly, causing loss in output, paucity of wage employment for landless agricultural labourers, and low income of the village economics. Under these, and similar circumstances, Planning by the Panchayats should be so worked out that land can be levelled, with subsidy provided to meet the wages and defray other

minor costs, "land levelling" work partaking the nature of a project. Similarly in case of numerous other projects such as reclamation of water bodies, land reclamation, construction of irrigation canals, and certainly construction of rural roads, primary schools and outlets for basic health services, serving the community of villagers, should be integral parts of planning for development from within, with subsidy from the Government so utilized, and the schemes executed strictly on the cost-benefit basis.

Of the three main sectors mentioned above, resource position is worst with the Government sector Per capita per annum fund currently available from this sector in the district plan is of the order of approximately Rs 90 only, though it is theoretically feasible to mobilize around Rs 200/- per capita per year for the 'bank sector' Commercial Banks and Public Sector Banks can achieve a credit-deposit ratio of 60 per cent, but the present credit-deposit ratio achieved by the banking system is below the set level at several places and in several States Similarly, the level of present utilization of resources in the "peoples sector" is much lower than the warranted level, as would be evident from the facts that, (in at least one State) agricultural workers available per village stood at 150 on an average, who had no work for at least 100 days in a year (as of 1985) The money value of this potential unused resources in 150 workers x 100 days x Rs. 15 net value added per worker or Rs. 2,25,000 per village per village per year Precious little of this potential is currently being used in development activities Planning for "development from within" has to be informed of these dimensions of our village economy

In sum, various schemes are to be first prepared by the villagers themselves, together with a comprehensive list of tasks required to be performed for the villages of Panchayats The schemes which can be conceived, executed and administered in the 'peoples' sector' need to be ascertained located in the Second Stage Of the balance of schemes or remaining tasks, those schemes which can be executed and completed on a commercial basis with assistance from bank, should then be identified as the Third Stage The balance schemes and tasks may be further re-examined at the Fourth Stage, to ascertain whether some of the schemes or projects that still remain could be taken up as partly financed by the bank and partly through public funds, where Government subsidy is available Finally at the Fifth Stage, the residual schemes and programmes consisting of all the items which can only be executed through Government funding, are to be prioritised under Government sector schemes.

It may be underscored that in contrast to the primary emphasis proposed to be placed on 'peoples' sector' under Planning for "Development from within", the current practice is to put emphasis in exactly the opposite direction, namely, on 'Government sector', leading the people to look upon the Government as "Mai- Baap", to solve all their problems The proposed planning process involves a reversal of the current pattern of thinking and functioning This undoubtedly is a difficult task and the greater is the delay in reversing the trend, the more difficult will it be to reverse it The opportunity provided by the Seventy-second (Constitution Amendment) Bill 1991, should be seized at initiating a planning process for "development from within" to reduce dependency on total Government funding, and a movement towards self reliance □

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Correction

Shri S B S Chauhan who co-authored the article "Export Potential of Minerals A Perspective" which appeared in July 31, 1993 issue is Adviser (Exploration), Ministry of Mines and not Planning Commission The error is regretted

Women's Participation And Jawahar Rozgar Yojana

Neela Mukherjee

Welcoming the step of reservation of seats for women in Local Panchayats, the author notes that if rural women are able to participate in planning, decision making and implementing different programmes, the results are expected to be much better and practical

JAWAHAR Rozgar Yojana (JRY) is a rural development programme primarily aimed at generation of additional gainful employment opportunities for the unemployed and underemployed persons in rural areas It has a range of objectives such as (i) creation of sustained employment by strengthening rural economic infrastructure, (ii) creating community and social assets, (iii) creating assets in favour of rural poor for their direct and continuing benefit, (iv) positive impact on wage levels, and (v) improvement in the overall quality of life in rural areas The programme is targeted at people below the poverty line

In this paper, I wish to match two elected objectives of JRY (as ndicated in points no (iii) and (v) as ated above) with the basket of eeds of the clienteles of the ogramme especially in the context gender. The objectives of creating sets for direct and continuing nefit of rural poor and improving rall quality of life in rural areas be set against the basic needs and rities of rural women who constitute nearly half the clientele group The issue is whether creating assets under the social forestry component of JRY can bring about direct benefits to a major proportion of poor women and can lead to any direct improvement in their quality of life

The assessment of the impact of such benefits flowing from such a scheme leaves many questions unanswered This is especially true in the context of poor women in rural areas who discharge their social responsibility in gathering of fuel, fodder, food and other materials by walking for long distances to forests and other source-areas and spending long hours together with facing all kinds of hasles involved in such collection

Village Avale

The following is a case study of village Avale in Tehsil Murbad of Thane district in Maharashtra where the poor tribal women spend a large part of their energy, long hours of hard toil and inconvenient circumstances in gathering of fuelwood and fodder and other materials from nearby areas. As stated by the local medical attendant, most of the women in that village are anaemic and weak and yet they are required to put in considerable hard work to manage the requirements of their households and livelihoods. It may be remarked, that in this context, their quality of life, functional convenience and work conditions could have been favourably influenced by the social forestry scheme of JRY undertaken in that village. However, such considerations were not thought to be important and hence were left unconsidered. The issue is who benefits directly from these schemes, whose problems have priority considerations and whose quality of life improves as a result Such schemes may result in single/multiple round/rounds of employment opportunities in the village and income generation for the panchayats in the long run However, there is not much in the scheme to ensure that the priorities of the weaker sections of society are catered to apart from creating employment opportunities The paper shows that in village Avale, the pressing needs of poor tribal women have been overlooked in the JRY scheme of social forestry undertaken in that village and in the process the women continue to live a life of hardship which tends to deteriorate from time to time and in selected seasons

We visited village Avale in the month of January, 1993, to learn about the social forestry scheme which the villagers had undertaken To start with we wanted to know more about the village, its people and its surroundings so as to appreciate the social forestry scheme, its context and significance On our request, the villagers started mapping their village on the ground in separate groups of men and women. This was because separate maps of the two groups of men and women would indicate more about their relative gender perceptions

on the vilage and its surroundings We interacted with these two groups separately to learn more about their problems, priorities and outlook before we went to visit the social forestry scheme undertaken by the villagers.

Mapping

As stated above, both men and women groups of village Avale were requested to draw maps of their village. Initially the women group was quite reluctant to come forward and make a map of the village We explained to the women that we wanted to learn more about their village visually, through drawing of maps They appeared shy and hesitant to start with. However, after some discussion, an adolescent girl of the village volunteered to draw a map of the village on the ground with a piece of chalk. She appeared quite enthusiastic and for a minute observed how the men group was mapping on the ground. Then she frequently consulted the elderly women sitting around her and drew the entire map of the village as shown in chart I The making of the map was followed by interviews with the women group present there The group indicated the paths which the village women generally follow to collect water, fuel and fodder The elderly women present there assisted each other in showing the details in the map although they were reluctant to hold chalk in their hands The map by women group was locational showing the houses in the village and the places where the women go to fetch water and collect fuelwood, leaves and other materials.

While describing their daily activities the women group pointed out that during off periods of cultivation they weed out 'roots' from the fields. They are also involved in bamboo work for which they spend three hours everyday except during the cultivatiion period when such time for bamboo work is not available. The women spent around an hour in cooking while the men look after the grazing of cattle.

The village map done by a group of men had attracted the attention of many others who joined the group to watch the making of the map The map made by the group of men was clear and neat showing paths in the village along with the connecting roads outside the village The map was similar to the women's map yet dis-similar in many important respects It showed the relative importance of roads and outer connections to the men group

The map done by the women group shows the sources of water from which water is collected and the forest from which the women gather fodder, fuelwood and leaves.

The group of women also showed which way they go to collect fuel and fodder and other materials There is a forest nereby which they visit on all days from 8 a m until mid-day excepting on Sunday and Tuesday when they generally rest at home They also store fuelwood and leaves and use them during the rainy season to meet their daily requiremets

Observations

(i) Collection of fuel and fodder appears to be time consuming The women spend 4 hours daily for such exercise for atleast 5 days a week

(ii) Apart from their requirements of fuel and fodder they are required to collect additional quantities to take care of the rainy season

(iii) The women collect water from the Durga nala which provides water for 6 months from June to November after which there is acute water scarcity In lean periods the demand for water is partly met through the well and partly through the water supplies from outside to the tanker

(iv) The women are required to walk around 5 kms for fetching wate and a little less for collecting fue and fodder Most of their tim goes in collecting water, fuel an fodder

(v) They spend an hour or so i cooking and other househol work. The women also spen around 3 hours for field worl like weeding out roots and/o bamboo work.

One relevant issue for planning i this context is whether it is possibl to reduce the time and energy spen by women on water, fodder and fuel This would help to reduce the burde of women who can then devote mor time for other activities such as chil care, income generation activitie group work etc.

Social Forestry

After describing the locationa map done by women and the natur of their activities performed we com to a discussion of the social forestr scheme in village Avale to examin whether the women group have bee (or could have been) benefitted b such a scheme with regard to the priority problems

Under the present guidelines c the scheme it is not necessary to hav such a perspective in view altogethe However, in this context, two point need to be emphasized, firstly, tha scarce resources and opportuniti need to be prioritised and secondl any favourable change in the cond tions of functioning of wome directly add to the benefits of th households concerned and to the quality of life.

The gram panchayat of villag Avale decided to plant trees und the Jawahar Rozgar Yojana in 198 They planted some 350 saplings c 'Khair' *(Accacia Catechu)* in an are of 0.5 hectares The land was donate by a local while the plants we procured from the local fore nursery at Re one per plant A grou of men in the village associated wi the social forestry discussed the us

of Khair and identified its advantages in such a social forestry scheme which were both in the nature of generating short and long-run future benefits as indicated below.

1. Wood from Khair trees can be used as poles for construction of huts;
2. Leaves of Khair trees could be burnt and such ash could be used to act as a fertiliser for paddy cultivation,
3. Wood from each Khair tree would fetch around Rs 250 after a period of 8 to 10 years after which they have to be replanted,
4. Planting of Khair is convenient, since these plants do not require to be watched as compared to fruit trees like mango or other trees like teak
5. Plantation of Khair for social forestry has a low cost where less labour is required and the plants do not require much water or fertiliser

One disadvantage of Khair as pointed out by villagers is that it cannot be used as a fodder nor is it good as a fuelwood since it is not very 'leafy'

As shown above, the type of plantation for social forestry has both short-run and long-run implications in terms of benefits to the villagers however, it is not of much practical consequence to the poor women in the village in terms of their problems and priorities The plantation under the social fore y scheme would have been diff nt if the village women had th rivilege of taking such decisior he village men are not alw adequately sensitised to the blems of women and their dec ns tend to relefect different p ities altogether As far as wom s activity of collecting fuel and der is concerned plants do produce fodde but some leaves r fuel. Hence, with such plants their quirement for fodder is not affected y favourably. Neiher is it for fuel.

In this context, the social forestry programme in village Avale is a missed opportuntiy in terms of providing some respite to the hardship experienced by village women.

Conclusions

It is not difficult to appreciate that there lies great scope for improvement in designing of general poverty programmes in such a manner that the programmes are able to reflect social and state concern for the priority problems faced in rural areas especially by rural women On most occasions such problems are taken for granted and such opportunities are overlooked There have been some efforts in building gender components in poverty programmes like IRDP and also having special programmes for rural women like DWRCA However, the effectiveness of such programmes depends on who decides on how a programme is going to benefit rural women and the role played by rur women in such a programme A welcome step in this direction s that of reserving women's sea in local panchayats. However much depend on the panchayat women, how vocal are they and how ective are they in turning decisio s to their favour in male-domin ed panchayats so that there is some reduction in the ardous task faced by poor women If rural wome are able to participate in pl ning, decision-making and im- ementing different programmes then they have a chance to express themselves and exercise their choice in deciding upon their priorities and even influencing male-dominated decisions. The results are expected to be better and more practical than either the top-driven approach where the decisions are taken from the top or from those of formal and informal village groups which are generally male-dominated.

JRY is basically an employm t generation programme and the cial forestry component of the pro amme can be targeted either ully or partially in solving pract al problems of poor women. Fr instance, in places of ecologica degradation and loss of forest cover, the social forestry progr mme can be chosen to be compat le with the priorirites and pref ences of poor women It is seldor reali ed that improving the lot of poor women in rural areas ads to mprovement in their living conditons and the quality of life of thos poor households to which they belong Steps taken to create efficient onditions for discharging their social responsibility can help in improving their health conditions, both physical and mental, lead to more time for attending to their children and also leave time for other activities including income generation

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Provision Of Services For Epilepsy In India

Prof. M.C. Maheshwary

THE worldwide accepted prevalence rate of epilepsy is 10 per thousand It is estimated that the total number of epilepsy patients in India is 8 76 million or 9 million

As the modern or Allopahic system is expensive and at times not available, people take to other systems of medicine like Unani, Ayurvedic and Homoeopathy It is very difficult to assess the percentage of patients of epilepsy who do not have access to any medical system or to other medical systems It is estimated that 40 to 50 per cent do not have access or seek medical attention from the Allopathic system Some patients get benefit naturally though temporarily, but they may ultimately come to Allopathic medicine

Epilepsy is a common illness and is one of the most common neurological diseases The tragedy is that despite being known for centuries, epilepsy remains misunderstood by patients with epilepsy, their relatives and people at large This accounts for the stigma of epilepsy and social prejudice This problem is further compounded by poverty and illiteracy Epilepsy is still equated to insanity in Indian laws. This has posed many great problems in education, vocation, driving, marriage, employment, insurance, inheritance and so on. These laws are not uniform for different ethnic groups There is an immediate need to correct the laws and be made favourable to the patients with epilepsy

Even today all patients of epilepsy cannot be adequately controlled by drugs One in four or five remains poorly controlled and requires specialists care at specialised institutions Standard drugs should be made available continuously and at the affordable rate New drugs should be available in the market easily Drugs used by other systems of medicine should display ingredients and develop formulary Adequate funds should be made available to them for research and to develop new anti-epileptic drugs on scientific basis The National Epilepsy Expert Group meeting in its report to the Government recommended setting up of 4-5 National Epilepsy Centres of excellence to provide most comprehensive epilepsy services and to develop a national policy for epilepsy management

In allopathic treatment, the patients of epilepsy are looked after by neurologists, neurosurgeons, psychiatrists, paediatricians, internists and general practioners, etc This system can not be disturbed for the time being The patients and relatives should have the right to choose the doctors but at the same time general awareness of the service of epilepsy in their locality should be created and made known to them. General practioners too should be informed to refer their patients for perusal to specialists who are dealing with epilepsy

Health care in India is a State function. State authorities have to be advised about health delivery for the patients with epilepsy Proper facilities have to be provided at the secondary and tertiary level, while better organisations would have to be created at the primary level To begin with, all the medical colleges and big hospitals should be provided with enhanced neurological services with special interest in epilepsy and diagnostic facilities National Epilepsy Centres should be directly funded and controlled by the Central Government These centres could turn lay down the future policy for comprehensive management of patients of epilepsy.

Many patients require medical care and assistance of social agencies for the whole life. Epilepsy is one of the chronic health problems. Epilepsy should be made one of the National Health programmes and funds should be made available through a five year National Plan budget

In the last few decades it has been appreciated that patients with epilepsy not only require medical attention but also psychological and social attention Social care cannot be effectively provided by medical men only Over the years epilepsy societies around the world were controlled by the medical people. A new trend has emerged that there are parallel medical and non-medical organisations in most countries. These work together very closely for the benefit of the patients with epilepsy. It has been seen that non-medical organi-

(Continued on page 24)

Vivekananda's Social And Economic Messages: Their Continued Relevance

Dr. Nitish Sengupta

IT was exactly a century ago that Vivekananda proclaimed his eternal message to humanity from the platform of the Parliament of Religions in Chicago That message to India and the world has lost none to its relevance during the intervening 100 years If at all it is more relevant for todays India with the problems of casteism, communalism, poverty, illiteracy and poor quality of life and environmental hazards stalking our nation as never before It is simplistic to think of Swami Vivekananda as a Hindu monk He was much more than that He was not just a religious saint, but a Vedantist preaching the concept of a universal religion for every human being irrespective of the formal religion in which a person is born He was India's first socialist, deeply committed to the eradication of poverty and the achievement of a classless, castless society He was a firebrand nationalist with a strong vision for India's liberation and yet a true internationalist who in his vision of a inter-dependent mutually co-operative world was far ahead of his time He was a social reform activist, and educationist and above all a humanist who believed in the innate greatness of man

In his clarion call at the Chicago Parliament, he emphasised the fundamental unity of all religions, deprecated the prevailing tendency to emphasize the greatness of one's own religion and decry other religions, and urged for harmonious coexistence of all religions He appealed to followers of various religions to be true to their fundamental tenets, and not to emphasise "secondary details" This is as relevant today as ever before

One cannot but recall his stirring words, "The Christian has not to become Hindu or Buddhist, nor a Hindu or Buddhist to become Christian But each must assimilate the spirit of the other, and yet preserve his individuality and grow according to his own law of growth Every religion has produced men and women of most exalted character If in the face of this evidence anybody dreams of exclusive survival of his own religion and destruction of the others, I pity him from the bottom of my heart "

This Vedantic concept of eternal universal religion could not be the exclusive property of the Hindus Believing in the unity of all mankind and the same God manifesting himself through all beings, he felt that Islam as a religion had gone the farthest in achieving this Vedantic concept of equality of mankind. "How I would long to see India as an Islamic body with a Vedantic head (letter to a friend, Sarfaraz Khan)" Again, "If you are born a Christian be a good Christian, if you are born a Hindu, be a good Hindu If you are born a Muslim be a good Muslim."

Different sects fighting for the exclusive right to worship in different names of the same God is contrary to all that Swamiji stood for Swami Vivekananda would have liked to see both Hindus and Muslims offering prayer to God—called by whatever name—at the same place and in harmony, without disturbing each other "Advaitism is the religion of the future enlightened humanity. Yet practical Advaitism which looks upon all mankind as one's own soul was never developed among the Hindus universally If any religion approaches this equality it is Islam alone "

It was from the Vedanta again that several other strands of his thought evolved He wanted the caste system to be completely eradicated, the poorer sections of the people to be given a fair deal and religion to be freed from priestly tyranny and vulgar ritualism Man is an incarnation of God. If this is so, if God resides in every soul, there cannot be any high caste, any low caste, any master or slave. For a true Vedantist there is no room for difference or special privileges on the basis of the accident of birth, no room for

difference between nations. Just as a body where blood does not flow through all the limbs equally becomes diseased, the same with a society where large sections of the people are kept backward and deprived of basic facilities and education. In his stirring words again, "Think of the last 600 or 700 years of degradation when grown up men have been discussing for years whether they should drink a glass of water with the right hand or the left, whether they should gargle five or six times. Our religion is in the kitchen. Our God is in the cooking pot and our religion is 'don't touch me, I am holy'."

For him the problem of the caste was a part of the greater national problem To remedy this he suggested free flow of spiritual and secular knowledge among the masses of the people and free flow of opportunities so that all could see the evils of the caste system and resist the humiliation and exploitation. "Religion is neither in book, nor in intellectual consent, nor in reason. Reason, theory, dogmas, doctrines, books, ceremonies are all helps to religion. Religion itself consists of realisation". For a true Vendantist all these rituals that the priests propagate were meaningless "For centuries these priests had been doling out ditch water as religion overlooking the eternal fountain of Amrit that lies behind us. "I consider the great national sin is the neglect of the masses and that is one of the causes of our downfall. No amount of politics would be of any avail until the masses in India are well-educated, well-fed and well-cared for. If we want to regenerate India we must work for them" "So long as millions live in hunger and ignorance, I hold every man a traitor who having been educated at their expense, pays no heed to them. I do not believe in a god who cannot give us bread here, giving eternal bliss in heaven."

National Regeneration

These thoughts were forged in the course of his 14 years of travel on foot across India when he came to know hunger, starvation, shelterless living, the misery of the poor and also their 'great potential'. His prescription was a programme of national regeneration in which education must play a major role. He addressed his appeals to three sections: the youth, the women and the lower classes. He demanded that the task of educating the younger generation should be taken over from the hands of the foreign rulers and from orthodox religious institutions and given to the society as a whole. Also, he considered it necessary that education should be patriotic, useful and that the achievements of advanced technology should be mastered by our younger people

Again, he attached great importance to professional, vocational training and to informal education—ideas which have become fashionable only just now after a century.

"Our aristocratic ancestors went on treading the masses of the country under feet till they became helpless, till the poor people nearly forgot that they were human beings. They have been compelled to be merely hewers of wood and drawers of water for centuries, so much so the most demoniacal and brutal arrangements culled from the crude ideas of hereditary transmission and other such gibberish from the western world are brought forward to brutalise and tyrannise over the poor"

He, therefore, wanted the upper classes in India to forget their exclusive privileges and merge themselves with the masses. The new India, according to him, would arise "out of the peasant's cottage, grasping the plough, out of the huts of fishermen, the cobbler and the sweeper, the grocer's shop, from the oven of the fritter seller, from the factory, from the mart and from markets, from the forests, from hills and mountains."

Vivekananda was by far the f
in India to call himself a socialist
his remarkable pamphlet "I an
Socialist" he did not quite preach
armed struggle between the clas
but, advocated a complete fusior
all classes and castes. Accordin
him, the world having passed thro
the Brahmanic age, the Kshat
age, and the Vaishya age, it
inevitable that the Shudras will t
over. The Shudras will takeover
remaining as Shudras, but as
types of human beings equal to
others in society. This also invol
the upper castes giving up all t
special privileges and accepting eq
status in society. Few intellectual
that time understood the significa
and value of labour. Recall
inspiring words "Those persons
workers—the insignificant s
people of India, the lower class v
held in by foreigners and abusec
their own countrymen They h
been solely toiling from time
memorial, and yet not getting
fruits of their hardwork At the s
time world is changing under nat
laws Everything gets topsy-tur
Oh the working class of my coun
world civilisation and wealth are
to your efforts. Yet who talks al
you Your fore-fathers wrote p
sophy and poetry and built tem
We boast so much about this,
who cares for you"? It is there
quite clear that he understood
complex operation of the econo
forces and of the cast confl
foresaw the inevitable fall of
existing social order, heard the f
steps of the advancing social rev
tion, and heralded the advent
new classless society He also stro
pleaded for the uplift of the lo
class through education and n
consciousness

Regard For Women

Vivekananda attached trem
ous importance to women. "With
motivated men it will take m
years to transform India. Wit

motivated women it may take only a few years" Again, in his perception, the state of a civilisation was to be judged by the way it treats its woman.

In his programme of national regeneration he attached great importance to mass education, an education that is not religious in the conventional sense, but both spiritual and scholarly and at the same time scientific and cosmopolitan He preached what he called "practical Vedanta" and a "man-making religion" In his opinion all the social reform movements in India had failed to succeed because they were confined only to a handful of people in the upper rungs of society and never penetrated to the masses below Unless the masses could be transformed, all these reform efforts were bound to be confined to a very narrow base Seeing even in today's India so many cases of bride burning occur on evil issues such as dowry, one recalls the prescription of Vivekananda that mass education alone could bring about true reform in the society. He also wanted that we should first flood the country with spiritualism and that will automatically solve all our social and economic problems He assigned great importance to the youth, the woman and the lower class as catalysts in his scheme for national regeneration

From his scheme of Vedantic humanism, universalism and freedom from oppression, nationalism was logically the next step. Vivekananda did not preach anti-British nationalism as such. But when he preached freedom, the need for emancipation from all bondage and for fearlessness against all oppression including domination by foreigners, he surely laid the foundations of the nationalist movement that swept over our country a few years after his passing away in 1902 "For the next 50 years let Mother India be our only god to be worshiped Let all other vain gods go to sleep for a few years Let your nation alone be the only god that is alive" He also spoke about political freedom through service to the motherland and the need for patriotism like the patriotism of the Santans of Ananda Moth

Let us recall his words from his famous address at Lahore in 1897 "So give up being slaves. For the next 50 years that alone should be our keynote, our Mother India Let all other vain gods vanish for the time from our minds This is the only God " In this address he praised Guru Govind Singh's spirit of fighting against oppressive rule and his sacrifice

"If the generation that followed saw, three years after Vivekananda's death, the revolt of Bengal, the prelude to the great movement of Tilak and Gandhi, if India today has taken part in the collective action of organised masses, it is due to the message from Vivekananda," said Romain Rolland His chosen instrument for transformation was the youth. He wanted to organise a hundred thousand strong brigade of educated young men and women to "send them like waves all over India bringing comfort, morality, religion, education to the doors of the meanest and the most downtrodden." These would be gigantic waves and nothing could resist these young people "with muscles of iron and nerves of steel inside, whose life is one of burning love, self-reliance, meeting death face to face, if necessary." That task remains unfulfilled even after a century. It is for our generation to fulfil this task and build a new India and a new world □

The author is D G.,
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Planning Commission

Essay Competition

We thank all those who took part in the Essay Competition Our special thanks are due to Dr (Smt) J Bhagyalakshmi, Editor, Publications Division, who very kindly consented to be the judge

In the opinion of the jury no essay could be found deserving the first prize The essays of the II and III prize winners are published Also, two consolation prizes have been awarded to K Balan, Puthiyadath Tazha Kuniyil House, Chokli, Kannore dist, Kerala and Umajyothi V, Kailasjyothi, Kaudiar, Thiruvananthapuram district, Kerala

Second Prize Winner

Swami Vivekananda's Bharat Parikrama, Chicago Address And Message Of Unity & Amity

Prema U.

SWAMI Vivekananda or Narendra Nath Datta or simply Naren as he was called in his pre-monastic days, was born to Vishwanath Datta and Bhubaneswari Devi in Calcutta on Monday the 12th January 1863. Swamiji's life mission was to propagate the lofty teachings of the Vedanta in the light of the realisation of his great master Sri Ramakrishna throughout the world and to regenerate his motherland in tune with her ancient tradition and inherent genius. Towards this end, he bent all his energies and passed away before he was forty years The Government of India declared 12th January 1985 as the National Youth Day, for it was felt that the philosophy of Swamiji and the ideals for which he lived and worked could be a great source of inspiration to the Indian youth The Indians must capture Swamiji's intense love for his motherland which was to him 'the Queen of his Adoration'

After the Samadhi of his Master on August 16th, 1886, Naren left the Ashram at Baranagore and travelled alone as an unknown mendicant, assuming various names, in order to conceal his identity and that he might be swallowed up in the immensity of India To quote Romain Rolland, "This was the great departure. Like a diver, he plunged into the ocean of India and the Ocean of India covered his tracks". He was nothing more than one nameless sannyasin in saffron robe, among a thousand others But the fire of genius burnt in his eyes He was a prince despite all disguise. He undertook this journey in order to test his own strength, to make himself absolutely fearless, gather experience of a new life and force his brother disciples to learn self-reliance

Swamiji's Bharat Parikrama between 1890 and 1893, took him to various places of pilgrimage and historical interest in Uttar Pradesh, Rajasthan, Gujarat, Maharashtra, Mysore, Kerala, Madras and Hyderabad. Swamiji travelled with an open mind from the dreamy poetic regions of the snow-capped Himalayas down to the last promontory of the land, where the mighty ocean spreads out into infinity Though the political, cultural and spiritual glory of ancient India came before his eyes, the terrible poverty and misery of the masses caused his soul to burn in agony. The cry of the people of India, the God struggling in humanity and the anxiety of men everywhere to grasp a hand for aid, moved him deeply The misery of the humanity were pulsating in his heart, which was a huge cauldron, in which sufferings of mankind were being made into a healing balm On reaching Kanyakumari Swamiji swam across the sea to a rock off the south coast, where he meditated on the past, present and the future of India and the causes of her downfall and the means of her resurrection. He had a vision that India had a mission in the modern world as a force of spiritual regeneration. He took a momentous decision to go to the West He would give the receptive Americans the ancient wisdom of India and the gospel of the Vedanta and take it by storm, and bring back to his motherland in exchange the knowledge of science and technology and the means for the salvation of the poor and thus ameliorate the material conditions in India. The thought nearest to his heart concerned the uplift of the ignorant and illiterate villagers and all the victims of social injustice and give them back their lost self confidence He realised the truth of his Master's words, "Religion is not for empty bellies".

Before sailing to the West from Bombay on May 31st 1893, Swamiji assumed the name Vivekananda at the request of the Maharaja of Kheri, who financed him to reach America, via Japan and China. These places enabled him to realise the spiritual unity of Asia. Having reached Chicago, he had a tough time upto September 1893, when the Parliament of Religions was to begin. Braving all tempests, Swamiji, described by an eminent Professor as "a man who is more learned than all the learned Professors put together", managed to stay with the other oriental delegates at the World Parliament of Religions Hall with

the help of a few God send good friends.

In the late afternoon of September 11, 1893, when Swamiji's turn came to address the Parliament of Religions, his face glowed like fire His noble bearing, bright countenance and gorgeous apparel had already made him the cynosure of all eyes His eyes surveyed the huge assembly in a sweep. His speech was like a tongue of flame for his words expressed exactly what he meant. Hardly had he pronounced the very simple opening words, 'Sisters and Brothers of America', when thousands in the hall rose to their feet with deafening claps of applause, for the well worn oratorical phrase became simple truth. For full two minutes, the wave of wild enthusiasm created by his significant form of address prevented him from speaking He was indeed the first to cast off the formalities of the congress It was the religious consciousness of India that spoke through him To quote, "I fervently hope that the bell that tolled this morning in honour of this convention may be the death knell of all fanaticism, of all persecution with the sword or with the pen and of all uncharitable feelings between persons, wending their way to the same goal" Upon the banner of every religion will soon be written in spite of resistance, "Help and not fight, assimilation and not destruction, harmony and peace and not dissension". The keynote of his address was universal tolerance and acceptance of all religions In conclusion, he pleaded for the quick termination of sectarianism, bigotry and fanaticism and requested the modern world to break down the barriers of caste, colour and creed and to fuse all people into one humanity All his speeches were intensely religious and highly philosophic, stating that the human soul is eternal and immortal, perfect and infinite. He asked his listeners to give up their materialism and learn from the ancient spirituality of the Hindus, "Come up o lions, shake off the delusion that you are sheep. We are the children of God, the sharers of Immortal Bliss, holy and perfect beings Each one of us has been born in order to rediscover our own God nature"

Swamiji's speeches had one common theme, namely universality and he emphasised that unity in variety is the plan of nature. One must end where one began and as one begins in God, one must go back to God He who sees that One life in this floating universe, who realises that One who never changes, unto him belongs eternal peace Ever tell yourself, "I am He" 'Awake, arise and stop not until the goal is reached", proclaim the Vedas. The one is homogeneity, the appearance of one as many is heterogeneity You are one with the Brahman, *Aham Brahmasmi* After realising this truth, one can realise that the whole universe is verily the same Brahman—*Sarvam khalvidam Brahman* He is indeed a yogi who sees himself in the whole universe and the whole universe in himself Swamiji experienced the fact that all that exists in the universe also exists in the body, and that the whole universe exists in the atom The less I think of my own individual mind, the nearer am I to that universal mind The harmony of oneness must pervade the whole world and then the whole of mankind will become *Jivan Muktas*— free whilst living

Vivekananda preached to the world what his master had taught, the divinity of the soul, the unity of existence and harmony of religions He always spoke of a religion that is as vast as the sky and as deep as the ocean, with a quote from the Bhagavad Gita, "I am in every religion as the thread through a string of pearls" Just as universal brotherhood of man is existing, so also is universal religion. If one religion is true, all other religions are true. We should gather all the flowers that are religions and bind them together with the cord of love and make them into a wonderful bouquet of worship, for the Gita says, "whosoever comes to me, in whatsoever form, I reach him". The watch word of the world must be acceptance of all religions that were in the past, keep the hearts open at present and for all that may come in the future. Vivekananda's quote from the scripture was, "As the different streams having their sources in different places all mingle their water in the sea, O Lord, the different paths which men have taken through different tendencies, various though they may appear, crooked or straight all lead to Thee" Every religion of the world claims that there is unity within us Knowledge means finding this unity. The great idea that the world wants today is the eternal grand idea of spiritual oneness of the whole universe There is only one reality that exists in you and in me and in all. Swamiji very much wanted to build a temple universal, where people of all faiths would gather to worship the Godhead through the symbol *Om*, representing the undifferentiated Absolute He likens the world to a kettle of water When set to boil, one bubble rises, then another and soon, until at last they all join and a tremendous commotion takes place Each individual is like a bubble and the nations resemble many bubbles. Gradually these nations will join until all separation will vanish and the oneness will become manifest.

Swamiji was sure that the West and the East have a lot to learn from each other, in fact the future has to be shaped by a proper fusion of the two ideals. He found that social life in the West is like a peal of laughter, but underneath it is wail. It ends in a sob. Here, in India, it is sad and gloomy on the surface, but underneath there is merriment. East and West must work hand in hand for the good of each other, without destroying the

special characteristics of each. Then there will be neither East nor West, but one humanity. The principle is that nations and individuals prosper by a system of give and take, for love is life, hatred is death. Expansion is life, contraction is death. We must mix with all the races of the earth. No one can be happy until all are happy, for you and your brother are one. Hence each is responsible for the evil anywhere in the world. Let us calmly and in a manly fashion go to work, instead of dissipating our energy in unnecessary fretting and fuming. It is love that pays. It is character that cleaves its way through adamantine walls of difficulties. There cannot be growth without liberty. Work for the good of others. Desire nothing for yourself, for if you seek your own salvation you will go to hell. Do everything for others. Self sacrifice and not self assertion is the law of the highest universe, Swamiji said.

The life and messages of Swami Vivekananda are a source of great inspiration to individuals and nations alike. The teachings of this patriotic monk are the embodiment of dynamic strength and give courage to a drooping soul. Truthfulness and purity are the backbones of this majestic personality, who is a living hymn of work. "Let me live and die in action", he said. "I shall not cease to work until I inspire men everywhere and until the world knows that it is one with God" Indeed, Swamiji's words have proved true, for his lofty ideals are still inspiring the present generation. □

(Continued from page 7)

move from district to district at suitable intervals and train the functionaries. This is of immediate importance as reservation has also been provided for the posts of heads of Panchayati Raj Bodies. In Bihar set up, for example, it will be a remarkable change when one finds one-third of these posts being held by women.

Particular attention will have to be given in budget-making, project preparation and accounts keeping. Accounts, a sticky wicket, needs special attention.

Collectors' role at the initial stages will be crucial. They should take personal interest, visit Panchayati Raj Institutions, meet the members and encourage them. Once women members feel confident of support, they will shed their shyness and hesitation and come forward to participate in discussions with an open mind.

It is a great tribute to our democratic system that such far-reaching changes are made smoothly. The real challenge is implementation. There are men and women of goodwill all around. If they come together and resolve to make the experiment a success, it will be a success. Organising meetings, celebration of Panchayati Raj Day or Women's Day, holding of workshops and seminars—will go a long way in creating awareness and arousing interest, particularly among women, in Panchayati Raj Institutions. The voluntary agencies may play a creative role in this.

The training programme, however, need not await literacy. It should start straightaway. Even illiterate women, with suitably structured course, can be made to appreciate the broad features of law and the rules relating to the Panchayat system.

While women may find handling issues at the village level comparatively easy, the intermediate and the district levels may pose complicated problems.

The sooner the training starts, the better for the system. Assistance of experts and administrators should also be adequately available. The Panchayats have to be suitably aided by trained officials at all levels. That the decisions will be taken by educated persons does not preclude the role of officials. They have to assist with their expertise and knowledge. While the village level functionaries will be available at the village Panchayat, the Panchayat Samiti or the Zila Parishad should have full complement of technical and other officials to assist and carry on the day to day administration. Administration should continue playing its role at the local level as it does at the State or the national level.

Popular participation at different levels of administration is the essence of democracy. It gives the system resilience and strength. It creates confidence among people and gives them a sense of fulfilment. Women's association with the Panchayati Raj system is a major step in that direction and should have full support of the community in achieving the goal of an equal, just and progressive society. □

The author is former Adviser, Inter-state Council.

Third Prize Winner

Sister M. Beatrice AC.

THE hour had struck It was late afternoon, Sept 11, 1893 The magnificent hall was packed with over seven thousand people. On the dais were the representatives of every religion the world had known Mentally invoking the all-knowing God, arose one solitary 30 year old representative "Sisters and Brothers of America," he began A tremendous applause that lasted full two minutes stifled his flow of words Who was he, this strangely clad turbaned figure, this lotus-eyed, holylooking attractive personality with bright countenance and eloquent earnestness? None other than India's illustrious son- the simple man with the begging bowl who suddenly on the world horizon shone as the man of the hour—Swami Vivekananda!

Swami Vivekananda, whose presence at the World Parliament of Religions held at Chicago, we commemorate this year, known as Naren in the days of his childhood and as Swami Vividishananda in his monastic career took the name of Swami Vivekananda on the eve of his departure to America, and he is ever since known as the worldfamous Swami Vivekananda Remarkably well-versed in the religious, scientific and metaphysical literature not only of his own country, but of the world as well, it was remarked by Professor Wright of Harward University that "his erudition matched that of all the Professors of this University put together". As an itinerant monk he had travelled for over three years through the length and breadth of India, visiting the sacred places dotted all over country, mingling freely with the learned pandits and ignorant peasants, sophisticated city-dwellers as also the humble outcastes of society

With Baranagore Math as his starting point he covered the whole of our Bharat Passing through Bhagalpur, Deoghur, Ghazipur, Varanasi, Ayodhya, Srinagar, Tehri, Dehra Dun, finally he reached Rishikesh where he fell ill "Cheer up, boys I'll not die!" he declared. As soon as he revived, he started for Delhi. He was bent on travelling alone, incognito, onward and onward across Rajasthan, Gujarat, Maharashtra, Mysore, Kerala Through the vast sub-continent, with bold steps and oneness of purpose, he proceeded "I wander about like a fakir, and I like it", he admitted Politics held no attraction for him "God-realization is the one and only aim of my life", he constantly declared, as taught by his guru, Sri Ramakrishna One Christmas eve, had not he and his fellow-monks at Baranagore after listening to the story of Jesus Christ and about Paul preaching about the Crucified and Risen Jesus, pledged themselves to a life of renunciation. With strong determination he continued his tour Ajmer led him westwards After halting at Ahmedabad for a few days, he visited several places in Kathiawad before going on to Dwaraka. At Limbdhi he found himself deceived and locked in. After his escape he made his way to Bhavnagar and Sihore. Everywhere he spoke to those whom he met with openness of heart and independence of mind, expressing his views fearlessly on social and religious matters.

Then he left for Goa and visited Panjim, dipping into the study of Christian Theology. After a brief stay with Tilak at Belgaum, he betook himself to Dharwar, Bangalore, Mysore, Madras, Ernakulam, Cochin, Trivandrum and Kanyakumari Everywhere the glory of ancient India—spiritual, cultural and political—vividly appeared before his eyes as also the abject misery of the masses, causing his soul to burn in agony He had wandered wherever his feet had taken him, in scorching sun and biting cold, in sun and rain, over hills and dales, through deserts and crowded cities, to magnificent palaces and miserable hovels He beheld the variety and complexity held out by our Bharat The more he pondered, the higher his mind soared to the supernatural His heart expanded with sympathy for the poor and lowly He was caught with a sense of 'Mission' By his talks he tried to bring those being led astray by the glamour of Western civilisation to a sense of true values

At Kanyakumari, he swam across the sea to a rock off the coast, and spent the night in deep meditation The vast panorama of his Bharat Parikrama flashed across his mind He reflected on India's past and present, and mused about her future He now definitely decided to go to the West and seek help for India, as the Maharaja of Mysore had already assured him of financial assistance for this venture And now he proceeded on foot to Ramnad, Madurai, Pondicherry and Madras When he disclosed his plans, his disciples at Madras raised a subscription forthwith for his passage "My mission to the West" was the

theme of his lecture of Secunderabad. Then news came that the Maharaja of Khetri wanted his guru urgently. So he decided to go there. Halting at Bombay just to purchase his ticket for the voyage, he proceeded to Khetri, via Jaipur. At Khetri he was persuaded to assume the name, Swami Vivekananda. On May 31st, 1893 he set off aboard "peninsular" to the New World.

On September 11, 1893, at 10 a.m, sharp, ten strokes of the New Liberty Bell announced the arrival of the delegates of the ten chief religions represented at the Parliament of Religions. In solemn procession, two by two, the delegates walked into the hall, along the aisle and up the platform, while the throng cheered lustily. The proceedings began with a prayer song and the Lord's Prayer, followed by speeches of welcome and replies by the delegates. Right through the day, Swami Vivekananda, conspicuous in his gorgeous apparel and yellow turban, sat rapt in silence. Several times he was called upon to speak, but it was always, "No, not yet!" Until late in the afternoon when the Chairman insisted, he rose. He had no ready made speeches like those preceded him. "Sisters and Borthers of America!" his voice rang out in an earnest, sincere tone. The whole audience was stirred and a long deafening cry of applause ensued. At length when silence was restored, Swamiji greeted the youngest nation in the name of the oldest order of monks in the world—the Vedic Order, which has taught tolerance and universal acceptance. He quoted the following passages from the Hindu Scriptures:

1. "As the different streams having their sources in different places all mingle their water in the sea, so O Lord, the different paths which men take, through different tendencies, various though they appear, crooked or straight, all lead to Thee!"
2. "Whosoever comes to Me through whatsoever form, I reach him; all men are struggling through paths that in the end lead to me."

It was only a short speech, but it voiced the spirit of the Parliament. Its sense of universality captured the whole assembly. "It was like a tongue of flame," commented Romain Rolland; "among the grey wastes of cold dissertation, it fired the souls of the listening throng." At the end of his little speech Swamiji sat down "almost exhausted with emotion" while the cheering crowd set up wave upon wave of enthusiastic applause.

The Parliament met daily for 17 days. A tremendous amount of business was transacted, and we may well imagine that Swamiji did make significant contributions both at the Plenary and at the Scientific Section Sessions. Unfortunately, we know almost next to nothing about his lectures except his first " Response to Welcome" and his "Paper on Hinduism" We have only the bare titles of some of his addresses viz. "Why we disagree" (on Sept. 15), "Religion not the Crying Need of India" (Sept. 24th), "Budhism, the fulfilment of Hinduism" (Sept. 26th), "Address at the Final Session" (Sept. 27).

Swamiji's influence on the crowds at the Parliament did not end there He was immediately booked for a Lecture Tour which took him all over the country. From the little we have by way of written records—for tape recorders and other such communication media did not exist in those days—we still can glean his message of Unity and Amity

After unveiling the Truth in his heart by addressing the Parliament-Assembly as "Sisters and Brothers", Swami Vivekananda began to proclaim the God of Truth and Love. He made his listeners realise that God is the Reality of realities, the Absolute, the very Self of the self in each and all, that He is a personal as well as transcendent God. Our hearts should go out to Him in absolute, pure, unselfish, disinterested, unconditional love, love for love's sake, love that knows no bargaining, this is the essential basis for our unity and amity.

To emphasise Unity, he declared: "The whole world of religions is only a travelling or a coming up of different men and women through various conditions and circumstances to the same goal". Changing the matephor for various glasses for the sake of illustration, "It is the same light coming through various glasses of diifferent colours, and these little variations are necessary for purposes of adaptation. But in the heart of everything the same Truth prevails. Swamiji cited the Vedas in which the different religions are symbolised as the different vessels which different people use to take water from a spring. The water of Truth is what everyone is seeing but they use different forms of vessels. "Stick to your beliefs," he advised. "The Truth is never lost Books may perish, nations may go down in a crash, but the Truth is preserved, and is taken up by some man and handed back to society, which proves a grand and continuous revelation of God."

He maintained that Religion is Love—enfolding, expanding, growing. He used another illustration to explain this "It is like a spring within a watch. It is not necessary that all watches have the same kind of spring, and it is not necessary that we all have the same religion. And why should we quarrel? If we all had the same ideas, the world would be dead. . We must have unity and variety. The rose would smell as sweet by any other name, and it doesn't matter what your religion is called... As all streams flow into the ocean, so all religions bring us to God. Let us help and not destroy."

On the closing day of the

Parliament, he thanked the organisers, the speakers, the appreciative audience and even those whose subtle remarks had jarred on him, for "they have by their striking contrast made general harmony the sweeter." He continued. "If anyone here hopes that this unity will come by the triumph of any one of the religions and the destruction of the others, to him I say, "Brother, yours is an impossible hope." The Christian is not to become a Hindu or a Buddhist, nor a Hindu or Buddhist to become a Christian. But each must assimilate the spirit of the others and yet preserve his individuality. If the Parliament of Religions has shown anything to the world, it is this. It has proved to the world that holiness, purity and charity are not the exclusive possessions of any church in the world and that every system has produced men and women of the most exalted character."

He wrote to a disciple. "Move onward and carry into practice that which you are very proud to call religion, and God bless you! Love never fails, my son Today or tomorrow or ages after, Truth will conquer. Love shall win the victory!

Do you love your fellow-men? Where do you go to seek your God? Isn't He to be found in the poor, the miserable, the weak?... I do not believe in a god or religion which cannot wipe the widow's tears or bring a piece of bread to the orphan's mouth!"

When he received letters calling him back to India, this is what he said. "I believe in helping the miserable. I believe even in going to hell to save others Talk of Westerners?. No man, no nation, can hate others and live India's doom was sealed the very day they invented the word *Mlechcha* and stopped communion with others .. It is easy to talk glibly about the Vedanta, but how hard to carry out even its least precepts!" Swamiji knew what he was talking about. He knew it from experience

Since then nearly a century has passed by, and experience had proved that 'History repeats itself' Our Bharat is still badly in need of unity and amity May Swami Vivekananda's Message on this point sink deep into our hearts and bear fruit in the days and years to come

(Continued from page 15)

sations do much more towards social benefit.

These have been equally or more effective in creating awarenes and mass education in the society and amongst the people with epilepsy We in India have to accept this trend, though it is resisted by a few for their own benefit with complete disregard for the patients. Participation of the patients, relatives and people committee to betterment, removing misconceptions and social stigmas from the society through their own societal action would achieve better and faster results .

Two international organisations, International League Against Epilepsy (ILAE) and International Bureau of Epilepsy (IBE) with the help and direction of the committed people to benefit the patients with epilepsy have made tremendous progress in all fields of epilepsy We must have a very close link with these organisations. Good exchange programme with the developed countries and centres should be cultivated Similarly, we should provide our expertise to the less develop countries.

The Indian Epilepsy Association should make every effort to the Government to accept its recommendations. These include.

1) To have in-depth epidemiological studies in various parts of the country to know the magnitude of the problem and to plan a long term strategy for the well being of patients with epilepsy
2) To educate patients and masses about various aspects of epilepsy by all possible means like electronic media, newspapers and specially prepared literature
3) To make available all antiepileptic drugs at an affordable price at chemist and druggist shops. Quality of drugs should not be compromised for any consideration. Phenobarbital should be taken off the "schedule X" drugs. Four drugs (Phenobarbital, diphenylhydantoin, carbamazepine and sodium valproate) should be made available in different strength and configurations
4) Epilepsy should be made one of the National Health Programmes and resources should be made available through Five Year National Plan budget
5) To have 4-5 National Epilepsy Centres of excellence to provide most comprehensive epilepsy services and to develop national policies in relation to epilepsy management
6) To have the laws amended in relation to epileps in the context of present scientific knowledge
7) To develop exchange programmes with advanced epilepsy centres in the developed countries to keep abreast of the advances in the field of epilepsy and to share expertise with the less developing countries.
8) To undertake research in indigenous medicines and the Indian system of practice of medicine in relation to epilepsy □

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Swami Vivekananda's Speech

AT THE WORLD'S PARLIAMENT OF RELIGIONS, CHICAGO

(11th September, 1893)

Sisters and Brothers of America,

It fills my heart with joy unspeakable to rise in response to the warm and cordial welcome which you have given us. I thank you in the name of the most ancient order of monks in the world, I thank you in the name of the mother of religions, and I thank you in the name of millions and millions of Hindu people of all classes and sects

My thanks, also, to some of the speakers on this platform who, referring to the delegates from the Orient, have told you that these men from far-off nations may well claim the honour of bearing to different lands the idea of toleration I am proud to belong to a religion which has taught the world both tolerance and universal acceptance We believe not only in universal toleration, but we accept all religions as true. I am proud to belong to a nation which has sheltered the persecuted and the refugees of all religions and all nations of the earth. I am proud to tell you that we have gathered in our bosom the purest remnant of the Israelites, who came to Southern India and took refuge with us in the very year in which their holy temple was shattered to pieces by Roman tyranny I am proud to belong to the religion which has sheltered and is still fostering the remnant of the grand Zoroastrian nation I will quote to you, brethren a few lines from a hymn which I remember to have repeated from my earliest boyhood, which is every day repeated by millions of human beings: "As the different streams having their sources in different places all mingle their water in the sea, so, O Lord, the different paths which men take through different tendencies, various though they appear, crooked or straight, all lead to Thee."

The present convention, which is one of the most august assemblies ever held, is in itself a vindication, a declaration to the world of the wonderful doctrine preached in the Gita "Whosoever comes to Me, through whatsoever form, I reach him, all men are struggling through paths which in the end lead to me." Sectarianism, bigotry, and its horrible descendant, fanaticism, have long possessed this beautiful earth. They have filled the earth with violence, drenched it often and often with human blood, destroyed civilisation and sent whole nations to despair Had it not been for these horrible demons, human society would be far more advanced than it is now But their time is come; and I fervently hope that the bell that tolled this morning in honour of this convention may be the death-knell of all fanaticism, of all persecutions with the sword or with the pen, and of all uncharitable feelings between persons wending their way to the same goal

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Address At The Final Session

(27th September, 1893)

...If the Parliament of Religions has shown anything to the world it is this. It has proved to the world that holiness, purity and charity are not the exclusive possessions of any church in the world, and that every system has produced men and women of the most exalted character In the face of this evidence, if anybody dreams of the exclusive survival of his own religion and the destruction of the others, I pity him from the bottom of my heart, and point out to him that upon the banner of every religion will soon be written, in spite of resistance "Help and not Fight," "Assimilation and not Destruction," "Harmony and Peace and not Dissension."

Swami Vivekananda's Bharat Parikrama And Its Message

Swami Gokulananda

THE monk who constantly moves on, remains pure like water that flows—goes the proverb. A love of pilgrimage characterizes the Hindu monk. a wandering monk with no material possessions except his walking stick and the begging bowl, learns self surrender to God Visit to holy places gives an impetus to his spiritual life In July 1890, we find Narendranath resolved to set out on a pilgrimage holding a staff in one hand and monk's kamandal in the other and with a copy of the Bhagavad Gita and the imitation of Christ in his possession. Before leaving, he craved for the blessing of the Holy Mother and told her "Mother, if I can become a man in the true sense of the term, then only I shall return; else this will be my last farewell." The Mother was taken aback and said "My child, you should not say so!" Naren instantly corrected himself and said "No, No, Mother, by your grace, I shall soon come back."

Naren did come back only 1897 as Swami Vivekananda after completing his spiritual conquest of the West.

Prior to July 1890 Naren had, however, a few jaunts of short duration. But each time he had to return to Baranagar Math in response to some call from the monastary. His first sojourn as the wandering monk was at Varanasi which was considered the holiest place in India and which was also the seat of learning. It was in this city that the prophets and saints like Buddha, Sankaracharya and Chaitanya preached their messages. The sacred Ganga flowing by this city makes it all the more holy. Here Naren met holy men of a high order like Trailanga Swami and Bhaskarananda Swami and this intensified his spirit of renunciation to a great extent. At Varanasi he devoted much of his time to spiritual practices and for discussion of many intricate questions pertaining to the Scriptures with Pramadadas Babu who was an eminent scholar in 'Sanskrit! An incident in this city had taught him a great lesson in life. One morning after visiting the temple of Mother Durga, Naren was passing through a narrow street when he was hotly pursued by a troop of monkeys. When he began to run, the monkeys also started running after him and he was in great danger of being mauled to death by the irate monkeys Suddenly he heard an old monk calling out to him "Face the brutes" At this Naren stopped, turned back, boldly faced the monkeys and looked at them defiantly. As soon as he did so, the monkeys turned back and disappeared. The lesson he learnt was that one should not run away from the problems or even dangers in life but should face them boldly.

At Ghazipur, he had meetings with Pavhari Baba, who used to live in an underground hermitage and lived on practically nothing. That is why the apellation Pavhari Baba (the hermit who lived on air) was given to him by the people. He practised the disciplines of yoga. Narendranath spoke of him as one of the greatest saints he had ever loved and respected. At Allahabad, he came across a Mohamedan saint every line and curve of whose face, as Naren himself told, showed that he was a Paramhansa As a wandering monk Narendranath moved on from place to place, visited Ayodhya, heart of the great epic Ramayana; Lucknow, a city of gardens and places created by the Nawabs; and Agra, the old capital of the Mughals. At Agra the beauty of the Taj Mahal so marvelled him that he observed that every square inch of this wondrous edifice was worth a whole day's patient observation. On way to Vrindaban he made a journey of last thirty miles on foot. While trudging barefoot, Naren felt a desire to share a puff with a person enjoying tobacco smoke at the road side. When he approached the man, the smoker shrank back and humbly submitted that he was a low caste and a puff from his pipe would defile the holy man. Naren first gave it up and proceeded on his way but the next moment the thought of non-duality of the soul and the bane of the caste rules in the society filled his mind He turned back and in spite of remonstrances of the low caste man, he enjoyed sharing a hearty smoke with him.

At Vrindaban, the places associated with the lives of Lord Krishna and Sri Radhika brought in him an

intense feeling of devotion. At Hathras, the Assistant Station Master Sarat Chandra Gupta, was so fascinated by the young Swami that he left his railway service, renounced all earthly possessions and followed the Swami to Rishikesh as his disciple. He later on became a monastic member of the Baranagar Math and was named as Swami Sadananda. At Rishikesh, Swamiji lived in the company of the sadhus and mendicants and devoted his time to spiritual disciplines. From Rishikesh he came back to Baranagar Math via Varanasi at the call of his brother monks.

Swamiji finally set out for the Himalayas in July 1890 in the company of Swami Akhandananda. They travelled along the course of the Ganga mostly on foot. They first halted at Bhagalpur and then came to Varanasi After visiting a few other places they arrived at Nainital in the Himalayas They then decided to move to Badrikashram, deep in the Himalayas and travel the whole distance on foot On their way to Almora under a peepul tree by the side of hilly stream both the Swamis spent many hours in meditation Swamiji had a deep spiritual experience there. It revealed to him that microcosm and macrocosm were built on the same plane Just as the individual soul is encased in the living body, so is the universal soul in the living 'Prakriti' Man is universe in miniature.

At Almora Swamiji discovered a solitary cave on the mountains. He entered into the cave to perform austere spiritual practices day and night in order to find the Truth. At the climax of the spiritual exercises he felt a strong impulse to plunge himself into the service of man instead of remaining in abiding personal bliss

From Almora, Swamiji proceeded for Garhwal and visited Karnaprayag, Rudraprayag and Srinagar He then moved to Tehri. Since the road to Badrikashram was closed by the Government on account of food shortage in that area at that time, Swamiji had to abandon his plan of visiting Badrikashram. He came down to Dehra Dun via Mussoorie. While on the Himalayas, Swamiji enjoyed the charming beauty of the water falls, streams in the mountains, wild forests and the peace and solitude of the great Himalayas and also the splendour of the perennial snow. From Dehra Dun he moved on to Rishikesh again. At Rishikesh, a holy place on the Ganges, thousands of ascetics and yogis practice meditation and yoga. At Rishikesh Swamiji fell seriously ill. The brother monks who were attending him gave up all hope for his life It was a miracle that the life of Swamiji was saved by the sudden appearance of a sadhu who administered some herbal medicine mixed honey through Swamiji's gullet.

From Rishikesh Swamiji moved on to Haridwar and then on to Meerut At Meerut when Swamiji was staying at Sethji's garden house, some of his brother monks—Swami Brahmananda, Saradananda, Turiyananda, Akhandananda and Adwaitananda joined him

Sethji's garden house was transformed into a second Baranagar Math The Swamis passed their time in meditation, prayer, bhajans and study of the scriptures and also of Sanskrit and English literature At Meerut Swamiji bade farewell to his brother monks and left for Delhi He wished to travel all alone and without being recognised In Delhi, Swamiji put up in the house of Shri H K Sen at Chandni Chowk for sometime and then moved to the garden house of Seth Shyamal Das at Roshanara Road Swamiji was greatly impressed with the ruins of imperial greatness in Delhi and her grand and composite culture As some brother monks met him also in Delhi, Swamiji became unhappy and he left their company saying that he was firm on striving to realise his goal all alone. He left Delhi for Rajputana wandering alone 'fearing nothing and caring nothing.'

In Rajputana, he stayed for sometime at Alwar. The Maharaja of Alwar and his subjects, Hindus and Muslims alike, were greatly impressed with Swamiji's erudition, catholicity and courage of conviction He then moved to Jaipur. From Jaipur, Swamiji went to Ajmer and then to Mount Abu. He then visited Khetri at the invitation of the Maharaja of Khetri who became one of his devoted disciples

From Rajputana Swamiji went to Gujarat. He visited Kathiawar, Ahemdabad, Junagadh, Baroda and other places in Gujarat and then moved to Khandwa in Central provinces He then came to Maharashtra and visited Bombay, Pune, Kolhapur, Belgaum and other places before he moved on to Bangalore. The Maharaja of Mysore was extremely pleased with this young monk and was impressed by his brilliance of thought, charm of character, wide learning and penetrating religious insight." The Maharaja took interest in Swamiji's plan of making a voyage to America which was still in a nebulous state Swamiji at that time declined to accept the offer of the Maharaja to bear the expenses of his journey to America

Swamiji then proceeded further south to Malabar. At Trivandrum, the capital of the then Travancore State, he was endeared by the educated and elite for the sublimity and sincerity of his charming personality. At Rameshwaram the Raja of Ramanand became his ardent follower. From Rameshwaram, Swamiji came to Kanyakumari, the Southernmost tip of India He looked at the vast expanse of the sea where the waters from the three oceans met. He saw a rock in the sea

and swam two furlongs to reach that rock despite the danger of sharks. There, on the rock he sat in deep meditation By then he had traversed the length and breath of India, his dear motherland. He got completely absorved in the thought of what he had seen during the course of his wanderings

He mixed with all kinds of people ranging from the poorest untouchables to the kings and Maharajas who rolled in luxury He lived with them and ate with them, discussed with college professors, senior Government officials, farmers and people from all religious communities—Muslims, Jains, Hindus and Sikhs. He saw the abject poverty and squalor and the starving conditions in which the masses in India lived, and at the same time he saw the wealth and luxury of a few. He saw, on one hand, crude and oppressive superstition in the name of religion and on the other hand he saw the genuine faith of the people in their religious pursuits. His heart started bleeding at the plight of the people of lower classes—the peasants, the weavers, the artisans, the shoemakers and the sweepers—who had been producing the wealth of the country but all the more suffering oppression for thousands of years—suffering eternal misery and suffering it without a word of complaint But still they possessed a pure heart and a moral life

Sitting on the rock at Kanyakumari, Swamiji meditated for three days. His heart was in agony for the unfortunate masses who were on the one hand being crushed under the wheels of poverty and on the other mauled by the torture and humiliation by their fellow countrymen The truth of the Vedanta philosophy, of the divinity of soul and the unity of existence had no significance for them. They were shut out from the light of our great Vedantic scriptures and true knowledge of religion. The caste system which had orginally been divised for keeping up the organic unity of the Hindu society was now petrified and was sapping the vitality of the masses. He thought that a new India might be built up with "Vedantic brains and Islamic body." Swamiji was struck by the essential cultural unity of India in the midst of diversities of all kinds.

'What was my duty in the present situation of the country?' Swamiji asked himself He found that he was not destined to go into solitude to be in communion with God He must dedicate himself to the service of man which would be the real worship of God His God remained in the afflicted, the oppressed and the downtrodden He was convinced that India would rise through her religion The knowledge of divine presence in himself is the source of man's strength and wisdom But religion could not be offered to empty stomachs The masses of India were leading a miserable life due to poverty and ignorance. They should first be given food, education, health and the knowledge of science and technology How this gigantic task could be accomplished? Where from the resources would come? An idea flashed into his mind He should have band of dedicated workers—a band of Sannyasis dedicated to the ideals of renunciation and service, dedicated to the service of God in man For financial help he must approach the outside world. He recalled the earnest requests of his friends to go to America and represent the Hindu religion in the forthcoming Parliament of Religions at Chicago America came to his vision as a country of unlimited opportunities, a land of great wealth inhabited by generous people. The Americans could be offered the wisdom of the ancient Indian Rishis in exchange of their knowledge of science and technology.

Import Of Parikrama

Thus, Swami Vivekananda's Bharat Parikrama is one of the most significant events in the history of modern India. It made him feel the pulse of India as it were. It prepared the ground for his going to the West to deliver to the world the eternal spiritual message of India. It enabled him to see the plight of the poor Indian masses at close quarters and to find out the causes of it and the means to restore the glory of Mother India at its peak. Equipped with this knowledge and experience, how Swamiji thundered on the world scene in later years is well known to all

The Parliament of Religions of 1893 was undoubtedly a turning point in the cultural history of modern world It marked the beginning not only of inter-religious understanding and universal brotherhood, but also the beginning of a proper understanding of religion itself Further, Swamiji gave a new idea of harmony of religions learning from his great Master Sri Ramakrishna, who reverified the truth of the ancient Vedic dictum, 'Ekam Sat Viprah bahuda vadanti'—Truth is one, sages call it by various names—by means of his direct realisation of the truths of the major religions of the world that all paths ultimately lead to the same Supreme Reality This prompted Vivekananda to declare at the Parliament of Religions that religious harmony did not mean only toleration of other religions, but acceptance of all religions as true.

Further, Swamiji pointed out that true religion is not to be identified with certain external observances, doctrines and rituals, but it means direct realization of the Ultimate Reality. Thus, Swamiji pointed out: "If there is one universal truth in all religions, I place it here—in realising God. Ideals and methods

(Continued on page 30)

Book Review

CORPORATE FINANCIAL HEALTH—BUILDING RELIABLE RATIO INDICATORS: By L.C. Gupta; Published by Mrs. Suman Lata for Manas Publications-29, Central Market, Ashok Vihar, Delhi-110 052; 79 pp; Rs 150.

The above treatise points to some pertinent questions, viz how can financial ratio analysis be made more unequivocal, which of the ratios are best suited, etc The author Dr Gupta, has dealt in eight chapters the entire programme of deeper understanding of good financial ratio analysis practice In the chapter on object of study, the author very rightly observes the kind of financial ratio data system we have in mind in the form of a financial health scale In the chapter on aligning ratio analysis to todays conditions the author argues that financial ratio practice has become quite out of tune with the changed environment of today and points to a few powerful sources of improving the ratio practices, e g. (I) better selection and design of ratios to be used (II) applying the method of inter-firm comparison Chapter 3, deals with the needs of DFIs (Development Financing Institution) to evolve a more rational approach to ratio analysis. While commenting on the pawn brokers and the investment bankers approach to ratio analysis, he is of the opinion that not only the selection of the ratios but even the definitions should be tailored to the distinctive requirements to the IDBI and other DFIs. Chapter 4, deals with the methodology of testing the ratios. The author very forcefully maintains that an accurate independent ranking of companies by overall financial health is needed as control for statistical testing. Chapter 5, correctly narrates three fundamentals of corporate financial health, viz (I) in terms of cost competitiveness, (II) ability to service the investment, (III) ability to service the debt burden. Chapter 6, portrays the selection of right ratios for overall health evaluation The author rightly argues that whatever the ratios selected, a systematic application of interfirm comparison can greatly increase the power of this tool of analysis. In the chapter 7, he cites aptly (ROA) return on assets data in interfirm comparative form for paper, cement, and pharmaceutical companies Chapter 8, examines the action research programme for implementation It elucidates further that IDBI has started implementing revised system for financial ratio analysis Further the action research programme will take up creation of Data System using the ROA ratio, together with the integrated set of sub-ratios. In conclusion, in the chapter on methodology of testing, the author expresses concern at the problem of evolving the best form of corporate health variables through Delphi method with the following limitations among others, e.g (I) differences/overlapping exist in the perception of experts about a company's relative evaluation, (II) the disparity in ranks can be attributed to inadequate reporting, (III) it may appear unrealistic to expect an exact ordering. The researchers and professionals would find the above book very useful and interesting.

S.C. Lahiry

GUIDELINES FOR FINANCING SMALL SCALE INDUSTRY: A HANDBOOK FOR BANKERS AND ENTREPRENEURS: By T.N. Krishna Iyer; Himalaya Publishing House; Pages 159.

Small Scale Industries were revitalised in the post-independence period and particularly after the launching of the Five Year Plans they emerged as an integral part of India's industrial structure The strength of SSIs lies in their low capital intensity, high employment potential, low requirement of infrastructure facilities, quicker turn over requiring less gestation period, strengthening of indigenous entrepreneurship, decentralised/balanced regional dispersal of units resulting in better distribution of industrial income etc The last 2 decades have witnessed a phenomenal growth in output and exports establishing its significant role in the global trade The Eighth Five Year Plan has projected 5.6 per cent annual growth in output and 13.6 per cent growth in exports

Despite the importance assigned to promotion of SSIs by successive Governments in the form of incentive packages, its development is often distorted. Among a host of problems they face like inadequate supply of raw materials, lack of technical know-how, marketing facilities etc., inadequate finance is one of the biggest There are no uniform norms which can be applied to all industries for assessing their fixed and working capital requirements because the factors governing them differ from one industry to another. Also due to the inherent problem in running the

SS Units, the loan to small industry, by and large, is more risky and costly. It is here that the banker's professional competence and the entrepreneur's managerial capability have an important say

Against the backdrop of the complexities involved in the operation of SSIs, the author has provided an exhaustive analysis.

The author has incorporated the Reserve Bank of India's Directives for assistance to SSIs issued to commercial banks for compliance. The appendices are very informative. Financing of Village and Cottage industries has been added to this edition.

The guidelines into the vistas of finance contained in this book through primarily intended to assist the bankers for gaining professional expertise, would be found extremely useful not only by entrepreneurs wishing to start a small scale industrial establishment, but also to those concerned with banking and SSIs.

S.D. Padmanabhan

(Continued from page 28)

may differ, but this is the main point There may be a thousand radii but they all converge to the centre, and that is the realization of God.

Swamiji also spoke about the oneness of man, about the unity of existance Swamiji said that man's true nature is the eternal, immortal spirit. It is one and infinite and is the same in all men.

Swamiji's ideal was "to preach unto mankind divinity and to teach them how to manifest it in every movement of their lives". When a man realises this divinity within, he will not have any hatred or ill-feeling towards any one. A handful of such persons is sufficient to change the face of the earth. □

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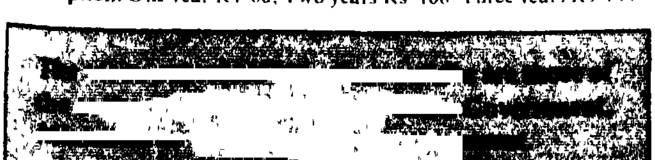
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A Plea For Rethinking On Plan Projects

Dr. S. Muthukumaran

The author calls for a close examination of the plan projects which have failed to generate the expected rate of return and are proving burdensome now. The off-loading, he feels, will help in more economical use of the scarce resource and better community participation in developmental activities

A perusal of our economic/fiscal policy will show that the Government has executed the plan projects by taking loans from the internal and external sources The execution of the plan projects have resulted in creation of valuable assets The Government is now maintaining these assets and getting certain amount of revenues These projects were generally planned and executed with the aim of creating assets which will generate sufficient returns to meet the maintenance charges, the interest on loan and also payments towards refund of loan Apparently many of the assets created through investment of loans have not been able to generate sufficient returns to meet the liabilities. At the time these projects were planned and undertaken, it was perhaps thought that even in cases where the assets created under a project may not generate sufficient returns, the projects will ultimately improve the income of the people served by them and thereby facilitate the exchequer to realise more taxes, these projects were thus expected to pay for themselves indirectly. But from the way the debt burden is mounting, it now appears that not only the assets created have not generated enough direct returns but also not resulted in the growth of the taxable capacity of those benefited by the schemes executed

The schemes that have been executed in the previous plan periods may be classified as follows

"Schemes that were not successful
(Category 1)
"Schemes that have benefited the people but the returns to the public exchequer are not meeting the liabilities
(Category 2)
"Schemes which have been remunerative and successful
(Category 3)

Schemes (category 1) that have not been successful may have to be identified Their working may be critically reviewed to find ways and means to derive the maximum possible benefit from them We may have to avoid taking up projects of this doubtful nature in future

Schemes (category 2) which had improved the incomes of the people in the region but have not been yielding sufficient tax returns commensurate with the benefits that had accrued are amenable for improvement in their performance It may be possible that the beneficiaries are either evading tax or are not being taxed appropriately. We may in-

vestigate this and make amends by curtailing tax evasion and/or restructuring the tax rates, as the case may be.

Indentification of projects (category 3) which are economically viable and remunerative is important. In the years to come, projects of the above nature may have to be thought of.

In the case of schemes falling under category 1, the transfer of the assets to those who are the beneficiaries of the projects may also be considered since such a step will ensure the proper motivation to utilise the assets more efficiently

Action Plan

The Government may explore the feasibility of taking up the following course of action

Every plan scheme executed earlier may be critically examined, if necessary on a zero-based budget basis

The cost of the project and the annual maintenance cost may be estimated

The returns by way of taxes from the beneficiaries consequent to utilising these facilities may be worked out

If out of the total sum of interest payable on the loan taken, the maintenance charges and payments on the loan exceed the tax returns, the possibility of tax evasion may be investigated and tax due must be collected Even then, if there is no break-even, the possibility of increasing the tax rate may be examined If after increasing the tax rate also, it is found not possible to meet the maintenance charges etc , it may be worthwhile for the Government to consider handing over the project to the beneficiaries themselves by forming an autonomous corporation For instance, if the case is that of an irrigation project, the project may be handed over to the land owners whose lands are irrigated by the project. The land owners will share this capital cost as well as annual maintenance cost on the basis of the extent of their land holdings. The right to harvest water from the catchment area must also be vested with those farmers. They will be required to take care of the catchment area, the water spread area, the main dam and its appurtenances, the canals and masonry works. They may themselves regulate the water supplies/uses

In small projects, what is suggested above may be applicable. In larger projects each canal may be handed over to the groups of farmers benefited by the canal The project as a whole may be a larger corporation to which these canal units may be subsidiaries

If the project is an industry, the Government may consider handing over the same to the employees Each employee may be required to purchase shares based on his emoluments If some are unable to buy the shares or if some shares are left with the Government they may retain them for future sales to the employees/for sales to the public

Conclusion

From the foregoing discussions we may conclude as follows

- While formulating plan proposals which are to be executed by raising loans, criterion for its being economically viable must be that it is able to generate enough returns to the public exchequer to meet all the liabilities, i.e , the maintenance charges, interest on the loan and payments towards refund of loan (category 3).
- Such of those proposed schemes to be executed by raising loans which do not meet the above requirement may be taken up only if there is scope for increasing tax revenues on the additional wealth that may be generated in the region due to the benefits that may accrue on completion of the projects (category 2).
- Educational and training programmes may have to be structured to provide the necessary number of persons educated or trained as the case may be to take up or serve in projects falling under categories 2 and 3, i.e., projects which will provide sufficient returns directly or indirectly
- If there is a necessity to execute schemes which do not satisfy these criteria and also do not lend themselves to indirect addition to the exchequer by way of taxing the additional wealth generated, then they should be taken up only by raising the necessary capital locally and not by taking loans. Such schemes will naturally be owned and managed by those that contributed to the capital.
- The Government may take a critical examination of the schemes executed in previous plan periods as indicated in the previous section and take action to restructure the tax rates and/or curtail tax evasion in the case of schemes which are likely to provide the returns (category 2) and in the case of projects falling under category 1, transfer the assets created to the beneficiaries of the projects as indicated in the previous section on discussion.

We may hope that such a course of action as above may reduce the debt burden of the Government to a great extent. Consequently the Government will be able to concentrate on developmental activities which will give quick returns. Further, those activities which have not paid off well, will also recover in due course, as the ownership of these projects are being transferred gradually to those, who are benefited by these projects and who on transfer of the shares to them will naturally be motivated to do their best to ensure that the projects succeed economically.

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Disinvestment Of Public Sector Equity—An Analysis

Dr. Shrawan Kumar Singh

EVER since the government decided to shed some of its equity holdings in public sector undertakings (PSUs), controversies about the desirability or otherwise of such an option have been continuing While some have seen in it a veiled-threat of privatisation, others have opined against such a needless exercise Regardless of such controversies, the government has gone ahead with its decision to disinvest its equity in some selected PSUs It may be worthwhile to have a close look at the nature, extent and method of such disinvestment

Some of the important issues for consideration are (a) Retrieving a large amount of government funds locked up in PSEs for meeting budgetary needs, (b) Ensuring smooth access of PSEs to other than budgetary sources for future growth, (c) raising return on capital invested in PSEs, and (d) Ensuring minimum hardship while rationalising the large workforce employed in PSEs

The arguments put forward by the proponents of disinvestment are

* This is a step towards privatisation, as is the present trend the world over Many countries, both developed and developing, have successfully privatised non-performing government undertakings
* By broadbasing the shareholdings the managers of PSUs will be made more accountable
* By reducing its shareholding, the government could distance itself from the management of the PSUs and thereby impart more autonomy to the undertakings, lack of which is supposed to be the main cause affecting their efficient working
* Reduce the budgetary deficit

The dicision to disinvest only upto 20 per cent of the government equity in PSUs was initially taken in February 1991, which was later endorsed by the present government in July, 1991 Disinvestment of public sector equity has evoked mixed reactions in different quarters

When the plan to disinvest twenty per cent of selected public sector units was announced, the general feeling was that this had been planned for raising funds The present government not only carried forward this policy but also gave it a new dimension PSU disinvestment has been viewed as an integral part of the programme of economic reform This is a valid interpretation But it does not mean that the role of PSU disinvestment in enhancing the government's revenue is insignificant The scheme does promise to yield substantial resources

Extent Of Disinvestment

Cutting down to size inflated egos is always an unpleasant job Shedding government holding in public sector enterprises (PSEs) is just that According to the Report of the Comptroller and Auditor General of India (CAG), total investment including equity, loans and deferred credits in 246 central PSEs amounted to Rs 1,13,233 68 crore as of March 31, 1991 Against this, the profit earned by these in 1990-91 was Rs 2,367 74 crore and the dividend paid a mere Rs 364 86 crore

Out of a total of 244 PSEs, the Department of Public enterprises (DPE) had recommended shedding of government holding in only 41 PSEs The list got pruned to 31 by the first week of December 1991 Of the 31 PSEs, eight were categorised as 'very good', 12 as 'good' and 11 as 'average' The categorisation was apparently made on the basis of the Net Asset Value (NAV) per share vis-a-vis face value of Rs 10 of the share of the PSEs as on March 31, 1991 Where NAV was Rs. 50 per share and above were categorised as very good,

between Rs 20 and Rs. 49 per share as 'good' and between Rs. 10 and Rs. 19 as 'average'.

The DPE told the 31 PSEs to value shares by three methods: (a) Net Asset Value (NAV); (b) Profit Earning Capacity Value (PECV) method at capitalisation rate of 4 to 8 per cent (c) Discounted Cash Flow (DCF) method based on the future expected free cash flow streams for a period of about five years discounted at appropriate rates The average of the two highest values so obtained would be taken as the 'fair' value or the 'reserve price' for the particular PSE share

Simultaneously, the government decided the level of disinvestment would vary from five per cent to 20 per cent Shares of all selected PSEs should be offered in the form of bundles consisting of nine PSEs (three from each category very good, good, average), through a process of bidding It was also decided that the total value of the equity in each bundle would be about Rs 5 crore based on the fair value of the shares of each PSE In the case of PSEs already listed on the stock exchanges, unloading would be directly to mutual funds and investment institutions at the market price

There is the hope that the government would adopt a less cumbersome path which can only be by pushing PSEs directly into the market It could, if need be, prescribe a holding of just one per cent by a single individual or a group in a PSE to avoid cornering of shares. After all, such a rule exists in banks.

Since July 1991, when the government decided to share ownership of the public sector, five tranches of disinvestment have been carried out, two in 1991-92 and the remaining three the following year, involving about 35 companies Sales proceeds from most of these have been disappointing, a total of Rs 4,903 crore (1991-92 Rs 3,038 crore; 1992-93 Rs. 1,865 crore), 24.6 per cent less than the Rs. 6,500 crore that they were expected to bring in The last of those five tranches proved disastrous, sales bringing in a mere Rs. 45 crore as against the required Rs. 1,500 crore.

Experience Gained

The government rightfully decided to disinvest public sector shares to save itself from becoming insolvent While this move needs approbation, it must be noted that the government failed to realise not only the best value, but also the other objectives of the disinvestment programme In this context the study made by the Institute of Public Enterprise, Hyderabad has made the following observations

- The government launched the programme without creating the required conditions for its take-off
- It did not get public enterprises listed on the stock markets
- Enough efforts were not made to build up the much needed PE-capital markets linkages.
- Opportunities were frittered away to sell PE shares when favourable conditions existed in the capital markets
- Suitable methods to oversee disinvestment of PE shareholdings were not resorted to The department of public enterprises and the Finance Ministry adopted techniques and methods which resulted in lower than justified realisations
- Managements of public sector enterprises were not consulted
- The launch was not discussed with stock market authorities and experts on capital markets

The CAG report reviewing 'disinvestment of government share holding in selected PSEs in 1991-92' has not doubted the policy option Rather, it has pointed to the fact that the government has not done the job in a transparent manner As it says, "The disinvestment served only to contain the fiscal deficit Planning in the disinvestment process was inadequate and incomplete"

Committee On Disinvestment

In view of the scheme of disinvestment of equity in public sector enterprises the Ministry of Finance, Department of Economic Affairs, had appointed a committee with Mr. V. Krishnamurty, ex-member, Planning Commission as its chairman. The government reconstituted the committee in November 1992 with Dr C Rangarajan, ex member, Planning Commission as Chairman

In its general approach, the committee was guided by several important factors such as

(a) The contributions made by the public sector in general to economic development, and entrepreneurial skills,

(b) The institutional, technological and fiscal compulsions that have led to a review of public sector investment,

(c) The experience gained in disinvestment in the recent past taking into account the unusual circumstances in capital markets

(d) The need to enhance the competitive strength and ensure expansion of these enterprises while protecting the interest of workers, and

(e) Above all, the requirement of consistency with the ongoing economic reforms in the areas of industrial licencing, foreign trade and investment and financial sector

Objectives Of Disinvestment

The objectives sought to be achieved through disinvestment in public sector equity are

(a) As an immediate objective to mop up resources of non inflationary character to meet the budgetary needs which in

clude requirements of development activities and social obligations.

(b) To subserve, in the medium term, the overall fiscal objective of gradually reducing the fiscal deficit and bringing about a positive overall impact on future liabilities and income flows to government

(c) To improve the overall economic efficiency by bringing about a more competitive atmosphere with emphasis on the cost and quality of product and service to the customers of public enterprise sector

(d) To enhance the efficiency of individual enterprises by imparting a new dynamism in the management of these enterprises through diversification of ownership and control as also larger and freer access to the expanding capital markets in India

(e) To realign the extent of ownership, control and regulation in different activities consitent with the technological needs and developments in industrial policy

Major Recommendations

The Rangarajan Committee on disinvestment of shares in public sector enterprises (PSEs) has recommended a disinvestment ceiling of under 49 per cent in industries reserved for the public sector, and over 74 per cent in other cases It has also suggested reconstitution of the PSEs boards with non-government representation The target levels of disinvestment for the medium term should be consistent with the industrial policy In respect of units reserved for the public sector, the level of government ownership should be 51 per cent, but in exceptional case, a target level of 26 per cent could be considerd. In respect of enterprises which are not reserved for the public sector, government ownership, if it is to be continued, should be justified with a set of specific reasons Government ownership of more than 26 per cent in these enterprises could be continued if the prospects were outstanding.

A number of preparatory steps for disinvestment have been suggested by the committee These include conversion into company wherever necessary, deciding the desirable level of equity and restructuring the financials with proper debt/equity gearing, assessing the ongoing investment plans of the PSEs and examining the scope of issuing convertible bonds as a measure of resource mobilisation for the PSEs The committee has also favoured establishment of an independent regulatory commission for the concerned sector, if necessary

Share Valuation: With regard to valuation of shares, the committee examined all the three common methods in vogue based on net asset value, profit earning capacity and discounted cash flow and said that the choice of methods would take into account the special circumstances affecting the PSEs.

The past focus of the PSEs was on social reponsibility rather than pure commercial considerations, financial performance being conditioned by a regime of administered prices and so on The debt/equity structure of most PSEs also did not follow the commercial norms According to the committee while the discounted cash flow approach in valuation has merit, it is the most difficult one since it involves estimating future cash flows. There are a number of uncertainties in income projectons in a liberalised regime, and so, "there is need to pursue valuation with considerable circumspection".

Three Options: As for the *modus operandi* of disinvestment, the committee has identified two acceptable and transparent processes. *First,* offering shares to the public at a fixed price, and *second,* sale through auction amongst a pre-determined clientele It has also identified a *third* method—transfer of controlling interest in an enterprise to a specific firm or person.

The committee is of the view that the first method should be adopted for PSEs with an established track record of trading, while the second would be advantageous in the case of PSEs with no track record, and going for disinvestment for the first time. In general, the committee is in favour of adopting the auction method with a wide participation

Shares For Workers: The committee has also suggested a scheme of preferential offer of shares to workers and employees in the PSEs with an individual ceiling of 200 shares making up a total reservation of 5 per cent of equity The ceiling could go up to 20 per cent in the case of PSEs engaged in certain non-manufacturing and skill-based sectors such as consultancy sectors

Use Of Proceeds: With regard to use of disinvestment proceeds, the committee has recommended that 10 per cent of the proceeds be set apart by the government for lending to the PSEs on concessional terms to meet their expansion and rationalisation needs A part of the proceeds could also be used in social sectors to promote literacy, health and employment creation. While suggesting limits to disinvestment, the committee has made it clear that the government should move towards the target levels recommended by it

Standing Committee: The panel has suggested setting up a standing committee on public sector disinvestment on a statutory basis in view of the financial magnitudes involved, multiple ministries concerned, impact on economic reforms and the need to monitor use of proceeds of such disinvestment. The standing committee may consist of

both full and part time members and draw expertise from the government, public enterprises, financial sector, professionals and academicians. The proposed committee would also be in a position to guide the public enterprises and the government in preparatory measures for disinvestment.

The Committee further commends for consideration, use of part of proceeds of disinvestment not only for National Renewal Fund (which may include financing of retraining of workers to enable redeployment), 10 per cent incentive for PEs and reduction in government debt but also for channelling resources to social sectors like literacy, health and employment generation in rural areas

The committee recommends that the following further measures in respect of PEs be inititated to ensure that the objectives of disinvestment are realised

(a) Government's expectations from the PEs as majority/dominant shareholders should be documented in the form of MOUs but the focus of these MOUs will be different viz customers and capital markets
(b) With diversified ownership coming into place after disinvestment reconstituting PEs' board with appropriate representation for non-government directors as may be necessary
(c) Each enterprise should be encouraged to commence work on corporate strategies and plans in aligment with ongoing reform
(d) Seminars and workshops could be held for the finance personnel and other senior executives of PEs on the subject of their new role in the liberalised economic environment, their relationship with the government, capital markets and their customers etc Standing Conference of Public Enterprises (SCOPE) could take the initiative in organising such workshops/seminars with guidance perhaps from Securities & Exchange Board of India (SEBI)
(e) A deliberate policy of "image-building" through media and projecting performance is also necessary to ensure continuous entry into capital markets for raising resources

The Report of the committee establishes clearly the need for a clear short term as well as medium-term strategy of disinvest and privatisation of public sector enterprises (PSEs) if these have to be accomplished successfully and without inviting criticism from those opposed to the idea. There has to be a macro-economic strategy, as part of the government's overall fiscal and industrial policy, as well as a micro economic, corporate-level strategy for each enterprise that intends to disinvestment in favour of private stock holders or go in for wholesale privatisation When the Finance Ministry decided to disinvest in the PSEs in 1991, the decision was taken in the context of a massive fiscal and balance of payments crisis when, under pressure to drastically reduce the share of the fiscal deficit in GDP, the government disinvested out of necessity rather than choice

Succinct Report

Now, the government has before it such a reasoned and rational strategy in the report which is written in an incredibly succinct and telegraphic language This is probably the shortest ever report of a high level committee appointed by the Union government, the 14-page report discusses the creteria for selection of PSEs for disinvestment, the limits on the percentage of equity to be disinvested, the *modus operandi* of disinvestment, the criteria for valuation of equity shares of PSEs, the target clientele for disinvestment and other issues, ranging from the lessons to be learnt from international experience and the manner in which PSEs can be 'prepared' for disinvestment

The committee does emphasise the importance of evolving firm level strategy for each PSE so that they realise their 'true' value in the market The preparatory steps to be taken by PSEs, as recommended by the committee, are extremely crucial if individual PSEs have to prevent being sold off for a song Moreover, the criteria for valuation of equity shares of PSEs is an extremely critical and delicate subject on which the committee should have elaborated a bit more Here, the committee believes that the best measure of the intrinsic worth of a PSE share is the discounted cashflow value However, in the absence of a clear corporate strategy, the new industrial and trade policy in combination with the gradual withdrawal of budgetary support to PSEs, would make even this basis undervalue a PSE's real worth These are delicate areas which have to be dealt with care

The Rangarajan Committee must be commended for taking a pragmatic view of the process of disinvestment What particularly impresses is its accent on a strategy rather than annual targets Hopefully, the government will accept its views on the methods of disinvestment and valuation because they are in the right direction

While dilution of public sector equity is likely to spur operational efficiency and consequently improve profitability of PSUs, it has to be supplemented by other essential measures for overall reform of the public sector which is long overdue Functional autonomy, least bureaucractic and political interference, introduction of a well-designed system of reward and punishment and meaningful worker's participation in management are some of the basic ingredients of such reform □

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The Need To Widen Horizon Of SAARC

Dr. Awadhesh Kumar Singh

Welcoming the adoption of the South Asian Preferential Trade Agreement, the author says, it is a symbol of political will of the SAARC nations to enhance economic cooperation among the member nations. The author suggests, India should take initiative to widen the SAARC horizon in larger interest

EVER since the establishment of South Asian Association for Regional Cooperation (SAARC) in 1985, there has been impressive progress in economic field. SAARC comprises seven South Asian countries namely, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The SAARC may be seen as a member of the family of regional organisations thriving in Asia and the World on a closer look, however, it appears to be distinct and different from its many predecessors like the EEC, the COMECON, the ASEAN, and even the OAS.

The initiatives for establishing such a regional forum in South Asia came from Bangladesh in 1980. According to an authority, there were mainly three important aspects of global and regional context in which this initiative was cast The first was the deteriorating international economic environment for South Asia resulting from the break-down of the North-South negotiations and worsening prospects for the South Asian economies. This naturally compelled the South Asian leaders to think of ways and means to cope with economic challenge. The second aspect was the emergence of like minded, western oriented regimes in South Asia in eighties. This opened the prospects of greater regional interactions in various fields and the South Asian leaders started exploring such prospects. And, thirdly, the strategic fall out of developments like the "Sour Revolution" in Afghanistan in 1978 which followed by the Soviet Military intervention in that country This prompted to the leaders of South Asian countries to unite to prevent Great Power intervention and rivalry in South Asia, and promote a regional forum to understand each other better and to have economic, social, cultural and scientific cooperation. It is important to note that the main objective of this forum was to promote peace, stability, amity and progress in the region. Among the important goals are: acceleration of economic growth, social progress and cultural development in the region, promotion and strengthening cooperation with other countries and above all, promotion of welfare of the peoples of South Asia and improvement in the quality of life.

South Asian region covers, 5.16 million square kms. of area with 1.5 billion population and the value of gross domestic product of $ 346 billions India has the largest share in terms of population (74 per cent), area (64 per cent) and GDP (74 per cent) in 1990

All the member countries fall into the low income category as compared to the developed countries In terms of per capita GNP in 1990 the largest share of $ 470 goes to Sri Lanka, followed by Pakistan ($ 380), India ($ 350), Bhutan ($ 210), Bangladesh ($ 210) and Nepal ($ 190)

As regards the share of major sector of GDP in SAARC countries, Agriculture sector is predominant in Nepal (55 7 per cent) followed by Bhutan (43 3 per cent), Bangladesh (35 3 per cent), India (28 3 per cent) to its economy 1991 As far as Service sector is concerned, Maldives has the largest share in this sector (59 7 per cent), Bangladesh (48.2 per cent), Sri Lanka (42.8 per cent) and Pakistan (42 4 per cent) and the least one goes to Bhutan (29 7 per cent). The Industry sector accounts for largest share in India (23.9 per cent) followed by Bhutan (23.5 per cent)

Regarding sector wise growth rate (per cent) per year, agricultural growth rate has been significant in India (7 9 per cent), Pakistan (5 1 per cent) and least in Bangladesh (1 3 per cent) Industry sector growth rate was prominent in Maldives (7 4 per cent), Pakistan (6.2 per cent),

Bangladesh (4.9 per cent). As regards Service sector growth rate, India ranked first (7.0 per cent) followed by Sri Lanka (6.2 per cent).

The main source of merchandise export of most of these countries is also agriculture. Fluctuations in the growth of agricultural production have resulted in unstable GDP and growth rates Prospect of trade mainly depends upon the production potential of an economy. The favourable policies of a country generally leads to the expansion of trade The Growth rate of agricultural sector during the period of 1980-89 was highest in Nepal (4 5. per cent) followed by Pakistan (4 4 per cent), India (2 9. per cent), Sri Lanka (2 2 per cent) and Bangladesh (2 1 per cent) On the other hand, the growth rate of industrial sector was found highest in Pakistan (7 3 per cent) followed by India (6 9 per cent) and Sri Lanka (4 4 per cent) Growth in the Manufacturing sector was highest in Pakistan (7 9 per cent) followed by India (7 3 per cent) and least in Bangladesh (2 7 per cent) As regards Service sector, the growth rate accounted highest in Pakistan (7 4 per cent) followed by India (6 1 per cent), Sri Lanka (5 3 per cent) and Bangladesh (5 2 per cent)

The average annual growth rate of export during the period of 1980-89 was highest in Nepal (11 2 per cent), Pakistan (8 5 per cent) and it grew at slowest rate in Sri Lanka (6 7 per cent) Regarding import, it was highest in Bangladesh (7 8 per cent) followed by Pakistan (4 2 per cent) and lowest in Sri Lanka (2.3 per cent)

During 1989-90 the growth rate of export was highest in Pakistan (14 8 per cent) followed by Bangladesh (13 4 per cent), India (8 6 per cent). In terms of rate of growth of imports in 1990, India accounts for the highest growth rate (5 6 per cent).

Intra SAARC Trade

The magnitude of the intra SAARC trade denotes the export of different member countries destined for the other member countries in the region as well as the import of member countries from within the region As figures in reports show the quantum of intra SAARC trade totalled $ 1624 5 million during the three year period 1985-87. The overall increase in this period was 6 per cent The intra SAARC trade has remained to constitute only a very small fraction of the trade of the member countries It accounted for only 3.28 per cent of the total export and 1 78 per cent of the total import of the member countries during 1985-87 It is Nepal whose export within the region was largest at 35 05 per cent, followed by Maldives. India has the largest share, about 43 per cent to the member states In terms of intra SAARC import, Nepal accounts for the largest share, about 27 per cent of total import from the member countries while Nepal's share is only 18 38 per cent of intra region's export

The scope of SAARC cooperation in economic field is tremendous The export realisation of tea and raw jute for Bangladesh would be higher if it is sold in the region Sri Lanka will get better prices by selling coconut oil, natural rubber in the region Buying wheat from Pakistan and rubber from Sri Lanka would have been cheaper for India

Why SAPTA?

Since the beginning of the nineties, the world economy has been in the grip of a severe recession Global production declined in 1991 by one per cent and also the growth of world trade declined upto 3 4 per cent in 1991 from 8.5 per cent in 1988 The whole world is moving towards regional economic arrangements Most South Asian countries have undertaken tariff reforms and economic reforms in general

The Seventh Summit of SAARC ended in Dhaka on 11 April 1993. In the summit, SAARC countries signed SAPTA (South Asian Preferential Trade Agreement) The adoption of SAPTA is the real start of SAARC. It gives India and other five SAARC nations (Pakistan is still draging its feet) a framework to show tangible results in moving towards preferential trade arrangements India by taking appropriate steps in its trade with SAARC nations can demonstrate to Pakistan the cost of that country not going along with the rest Some observers note that the acceptance of SAPTA does not appear to be a step forward towards the eventual formation of a regional trading block SAPTA is the first visible symbol and perhaps the most important symbol of political will of the countries of the region to enhance economic cooperation among these countries. The mechanism for liberalising regional trade under SAPTA include measures to reduce tariffs, para-tariffs, new tariff barriers, as also to initiate direct trade measures such as commitment in respect to long and medium terms contracts, preference in government and public procurement, state trading and buy back arrangements On the very important pre-requisite of a preferential trading, arrangement should be the elimination of all discriminating trade policies among the member countries The attempt to form SAPTA under the SAARC has been a slow and halting process And the time frame for its enforcement has not been spelt out clearly The SAARC secretariat has done a number of studies on role of trade, manufacturing and services in the region. The foundation of SAARC fund for regional institutions is a major step forward

Conclusions

The need is to create adequate political will among the leadership

and the public The stress should be on the need to give priority to economic goals rather than political postures Removal of discriminatory trade practices among member-countries should be the first step Secondly, collective negotiating mechanism in dealing with multinational institutions is called for For instance, some trade is routed through non-SAARC countries to by-pass restrictions It should be removed, and the coverage of intra-SAARC trade should be promoted, by encouraging multinationals and by establishing joint ventures in the SAARC countries India may take initiatives in this regard, establishing joint ventures in Nepal, Sri Lanka, Maldives, Bhutan and other SAARC nations Bilateralism should be strengthened to improve and normalise political relations Since the SAARC charter makes room for other members to join the association, it will be no doubt a helpful exercise if efforts are made and particularly through Indian initiatives, to make China agree to join this forum Perhaps Chinese entry into the SAARC forum will be welcomed by other SAARC countries since China has big market and India's export to China is significant

The author is associated with Giri Institute of Development Studies, Lucknow

Rail Bus

THE first prototype of rail bus being developed by the Research, Designs and Standards Organisation (RDSO), Lucknow, will be ready by April next year. It will be a light weight, low cost passenger coach. It will run on short routes where operating longer trains are considered uneconomical. Designed to run at 60 kilometres per hour, the rail bus will accommodate 60 passengers. It will be bi-directional with driver's seat on both sides. The under carriage design of the vehicle will be almost that of a rail coach with the body and seats resembling road bus with doors on both sides. The rail Bus will be manufactured ultimately in the private sector and it may cost between Rs 20-25 lakh.

Spices Export

EXPORT of spices from India amounted to around Rs. 382 crore during 1992-93. During 1991-92 and 1990-91 these were valued at Rs. 370.40 crore and Rs 233.94 crore respectively. India is one of the leading spices producing countries in the world and the important spices being produced are pepper, ginger, cardamom, chillies, turmeric, seed spices like corriander, cumin, fennel, fenugreek and celery

The Challenge Of Unemployment

Dr. Biswanath Ghosh

THE growing unemployment has been a major problem of the eighties and is going to be even worse in the nineties Provision of employment to all the jobseekers is a major challenge for the planners during this decade

Human development is the ultimate goal of the Eighth Plan It is towards fulfilling this goal that the Eighth Plan accords priority to the generation of adequate employment opportunities to achieve near full employment by the turn of the century

If we are to reach ultimately the goal of full employment by the turn of the century, we will have to concentrate on creating job opportunities, particularly in the rural areas The central plan has made substantial step-up in the outlay for Rural Development from Rs 4900 crore approved in the Seventh Plan (against which the actual expenditure was about Rs 10,800 crore) to Rs 30,000 crore in the Eighth Plan In this context, the rural development programmes will have to be revamped in order to become more effective and more productive The emphasis has to shift from the creation to relief type of employment of the building up of durable productive assets in the rural areas

During the past two decades, employment has grown at a rate of about 2.2 per cent per annum, but due to a faster increase of labour force at about 2 5 per cent, the backlog of unemployment has been rising A declining trend in the employment elasticity with respect to GDP growth in recent years has made the task of accelerating the growth of employment more difficult A deliberate and conscious effort towards employment orientation of the growth process is therefore essential

Backlog

For the purpose of estimating additional employment needed to achieve the goal of "employment for all" over a period, an assessment of a backlog of unemployment in the base year and the likely additions to the labour force during the reference period is needed

Total employment at the beginning of 1992-93 is estimated to be 301 7 million and labour force is estimated at 319 million Thus, backlog of open unemployment is estimated to be 17 million on April 1, 1992 and, if under or half-employed is taken into consideration, it would be around 23 million The labour force is projected to increase by about 35 million during 1992-97 and by another 36 million during 1997-2002 Thus the total number of persons requiring employment will have to be about 4 per cent per annum if the goal of full employment is to be achieved by the end of the Eighth Plan and around 3% per annum if it is to be attainted by 2000 A D

However, the goal of a 4% of employment growth will be rather unrealistic But an average employment growth of around 2 6 to 2 8 per cent per annum may be within the realm of feasibility, which if achieved over the next 10 years will bring the economy to near full employment situation by 2002 A D This is contingent upon the attainment of a higher average rate of growth of GDP than achieved in the past

A high rate of output growth is necessary but not a sufficient condition for high growth of employment. A structure of growth with larger contribution of sectors having high employment content of output enhance the employment generation potential of growth Employment growth has to result primarily from the growth of the economy and restucturing of output composition of growth There is no doubt that a larger and more efficient use of labour will accelerate the rate of growth itself, but the latter would largely depend on the availability of other resources like capital and internal and external demand. The employment potential of growth can be raised by readjusting the sectoral

composition of output in favour of sectors and sub-sectors having higher employment elasticity.

Opportunities

Agriculture still occupies a predominant place in employment structure, employing about 2/3 of the total workers Agriculture has shown the rapidly declining employment potential in the recent past. Despite this, there appears to be considerable scope for raising employment in agriculture in those regions of the economy which have so far lagged behind in agricultural development

It must be recognised that in the long run agriculture and other land-based activities, even with a high rate of growth, will not be able to provide employment to all the rural workers at adequate levels of income Over 1/5 of the rural workers are engaged in non-agricultural activities. This proportion has shown a remarkably rapid increase in recent years and policies need to be evolved to strengthen this trend.

A decline in employment elasticity of the industrial sector has mainly been caused by the declining employment potential of output growth in the organised sector. Employment elasticity is estimated to be as low as 0.15 per cent for the organised manufacturing sector, but is between 0.5 to 0.6 for the unorganised sector A larger contribution of the small unorganised sector is likely to raise the employment elasticity and employment growth in the manufacturing sector significantly. The small industry sector currently contributes about 1/2 of the value added and 3/4 of the total employment in manufacturing. If this segment of manufacturing can be made to grow at 10 per cent per annum, with the organised sector growing at about 5 per cent, the overall employment growth in the manufacturing sector will be about 4 per cent as against 2 per cent in the recent past.

The modern small-scale sector has shown significant growth in output, employment and also exports. However, the policy for the promotion of smll-scale industry has been very effective in serving the employment objective. The assumption that small capital necessarily implies high employment per unit of capital has not always been found valid. Thus while the criterion of capital size may be necessary for other socio-economic objectives, it is felt that employment criterion should be superimposed on it.

The growth of the services sector in recent years has been relatively fast but employment growth in this sector has been rather sluggish It experienced a GDP growth of about 6 per cent during 1980-81 to 1986-87 (as against around 4 per cent during the 1970s) but employment growth during this period has been of the order of around 2.5 per cent only This Sector has significant potential for employment generation both in rural and urban areas. Tourism, rural transport and repair services are sub-sectors identified as having relatively high growth as well as employment potential In the rural areas, employment in the services sector can be expected to grow with the faster development of agri-business resulting in increasingly larger volume of goods to process, trade and transport

A significant increase in public sector employment cannot be expected as there is already a high degree of overmanning both in the public enterprises and the Government departments But, in line with the aim of meeting certain basic objectives in areas like education and health, it would only be logical that more manpower will be required for strengthening educational and health institutions, particularly in rural areas. Strengthening of teaching staff in rural areas and adequate manning of the health system are likely to generate considerable job opportunities for the educated.

Suggestions

A part of the unemployment problem emanates from the mismatch between the skill requirements of employment opportunities and skill base of the job seekers. The mismatch is likely to become more acute in the process of rapid structural changes in the economy. It is, therefore, necessary to orient the educational and training system towards improving its capability to supply the requisite skills in the medium and long-terms and introduce greater flexibility in the training system so as to enable it to quickly respond to labour market changes in the short-run

It is recognised that the rapid expansion of education, particularly of higher education, has also contributed to the mismatch in the labour market While shortages of middle level technical and supervisory skills are often experienced, graduates and post-graduates in arts, commerce and science constitute a large proportion of job-seekers High private rates of return of higher education resulting from low private cost, is an important reason for the rush for higher education despite high incidence of educated unemployment At the same time efforts to divert the school leavers to vocational stream have so far been too little in relation to the size of the problem Educational system needs to be restructured to even out the mismatch in the labour market at all levels

The Eighth Plan has proclaimed that it is a Plan with a difference The declaration will be justified if it fulfils the desires of the unemployed youth of the country as envisaged in the Plan. □

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Solar Power For Development

Amitabha Ray

THE Ajodhya Hills located at a height of about 700 to 800 metres (MSL) in Purulia District of West Bengal with more than 80 per cent tribal population and 57 per cent of forest area is undergoing a new experience in rural development According to the latest census, the population of 46 mouzas of the Ajodhya Hills is 19,161 Most of the people of the Ajodhya Hills, like any other backward area do not have any command or access to the basic needs of life Undulated land, topography, poor soil texture, irregular, scattered and scanty reinfall, poor literacy, orthodox traditional beliefs, etc. may be identified as the major hurdles for developmental activities

Since 1982, the West Bengal Comprehensive Area Development Corporation (CADC), a rural development organisation of the State Government has been acting as the main catalytic agent for all developmental activities of the Ajodhya Hills CADC extends its guidance and financial assistance for promotion of agricultural as well as horticultural activities, eradication of illiteracy, health care, etc During 1991-92, the CADC installed around 1800 improved wood burning stoves (chulhas). Abour 50 per cent families of the Ajodhya Hills now own improved chulhas which is helping in the saving of 700 kg of fuel wood per family. The Department of Science and Technology and Non-Conventional Energy Sources, Government of West Bengal and Ministry of Non-Conventional Energy Sources, Government of India provided the financial and technical assistance and guidance for speedy installation of these chulhas The Department of Science & Technology and Non-Conventional Energy Sources, Government of West Bengal, sanctioned fund to the West Bengal Comprehensive Area Development Corporation for installation of 100 Solar Photo-Voltaic (Stand Alone) street lights at the Ajodhya Hills. The Department of Science & Technology and Non-Conventional Energy Sources Government of West Bengal also allocated money for procurement of (a) 100 Balance of Systems for Solar Photo-voltaic (Stand Alone) street lights and (b) 100 batteries for solar Photo-voltaic (Stand Alone) street lights from the West Bengal State Electricity Board Technical guidance for installation of the SPV (Stand Alone) street lights were provided by the Department of Science & Technology and Non-Conventional Energy Sources; Government of West Bengal 200 SPV modules costing Rs. 13.50 lakh were provided free by Ministry of Non-Conventional Energy Sources, Government of India. All the 100 SPV (Stand Alone) street lights at the Ajodhya Hills were installed and commissioned by the West Bengal Comprehensive Area Development Corporation by October, 1992

All the street lights are now in operation and it brought radical change in their life pattern Now, during evening the whole place is aglow with cultural activities—students reading books under the street lights is a common sight and Panchayat meetings under the newly installed SPV street lights a regular feature. Even around 11.00 p.m. one can see ladies leisurely preparing bidis. Also wild elephants do not appear at night as elephants are afraid of the lights

So, it is clear that the project which was initiated by Department of Science and Technology and Non-Conventional Energy Sources, Government of West Bengal with its financial assistance and technical guidance and implemented through another Government organisation, i.e. WBCADC, created a lot of impact in a remote and almost inaccessible village of the State. Further, it is to be mentioned here that most of the villages are 1 to 2 km. away from the main communicable road of the Ajodhya Hills Actually a financial input of Rs. 21 lakh has changed the quality of life of around 21 thousand people of economically weaker section of the society.

II

In Kaikhali—a small island off the Sunderbans in South 24 Parganas located almost at the corner of the

south-east part of the State of the West Bengal—the Ministry of Non-Conventional Energy Sources, Government of India, launched a scheme providing solar Photo-voltaic lanterns along with a charging station with the cooperation of the School of Energy Studies (Jadavpur University) about 4 years back Solar lanterns have already been handed over to a voluntary organisation, Shri Ramakrishna Mission Ashram, at the Kaikhali Island, which is responsible for the distribution, maintenance and day-to-day operation of the charging station and lanterns These 40 lanterns are being charged at the centralised charging station, which is located in the building of Shri Ramakrishna Ashram The system has been designed in a very simple fashion from the operational point of view The operator has just to connect the lanterns to the charging board

Each lantern contains one battery (6 v, 11 Ah.), one 7 watt compact fluorescent lamp and the relevant electronic system Further over-charging and deep discharging protection for the batteries are also incorporated in the electronic system The lantern is around 3 5 kgs in weight and costs about Rs 1200

III

An incidental project of providing 220 solar photo-voltaic lanterns as well as construction of a solar photo-voltaic charge station was taken up by the Department of Science, Technology and Non-Conventional Energy Sources, Government of West Bengal in a remote village named as Kulapara (District Midnapore) during 1991-92 The first phase of the project has already been completed in which 100 SPV lanterns have been provided to 100 families The second phase is yet to be started in which another 120 SPV lanterns would be provided to 120 families of the village The centralised SPV charging station is already in operation and it is able to charge 220 SPV lanterns at a time One can identify two interesting things at the Kulapara Project The project has been executed by a Non-governmental organisation named Paschim Banga Vigyan Mancha Secondly, the centralised charging station is being operated by a committee consisting of members of all the three tiers of local Panchayats & Mancha The Committee is repsonsible for daily operation along with repairing, replacement of components as well as maintenance of the centralised SPV charging station and SPV lanterns The funds for running this organisational infrastructure are generated from the revenue collected from charging of each lanterns Rupee one is being paid by the villagers for a single charging A supplementary system is also in operation at Kulpara centralised SPV charging station. Some SPV modules are kept aside to charge only higher capacity batteries required for TVs, amplifiers, etc Normally Rs. 10 is being charged for charging a TV battery once and this goes on for 18/20 hours (i.e. 3/4 days). Two local youth who are trained for operation and maintenance of the SPV lanterns and centralised SPV charging station are entrusted with the job and for that they are getting monthly remuneration.

From the experiences of the Ajodhya Hills, the Kaikhali Island and Kuplapara village, i e, three remote, almost inaccessible non-electrified and backward areas of the state of West Bengal, the following features stand out

1 Solar photo-voltaic system can change the quality of life;
2 Solar photo-voltaic system could be designed for employment generating technology which may be adopted in the village itself,
3 More use of SPV system would attract more manufactures, and
4 Popularity of the SPV system would certainly develop the technology and lower the cost of the system, which will help in its propagation □

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A Steady March To Progress

P.K. Devan

KERALA State has a tribal population of about 2 61 lakh A majority of them spread over the districts of Wynad (95557), Idukki (37979), Palakkad (28794) and Kasargod (28794)

Though most of the tribals of Wynad inherited land when the first adivasi settlement register came into force as far back as in 1908, many are still landless with their land tresspassed and encroached upon by the non-tribal who migrated to Wynad during the last four decades With the surplus land distribution programme by the State Government, 2352 landless tribals became owners of 1 acre of land per each family

The tribals who lead a community life in hamlets with small clay huts face various health hazards and danger from contagious diseases like Sickle Cell Anaemia Though there are about 20 health centres including one ayurvedic dispensary, mildwifery centres and 15 government hospitals, they are inadequate to meet the health needs of the thousands of adivasis of Wynad

Compared to other parts of the State, educational status of the Wynad tribals is still very low There are 33 tribal hostels in Wynad which can accommodate 1320 tribal students But at present the number of inmates is less than 800 The rate of school drop outs is also very high Only one or two per cent complete their high school education The Paniya Community which comprise 60 per cent of the tribal population is very backward in education The total literacy compaign of the State Government was successful in making a majority of the illiterates to learn reading and writing

Most of the tribals depend on agriculture and plantation industry for a living They are employed seasonally Work in the paddy fields commences in June and ends by October and that of coffee plantations starts by December and ends by the middle of March From October to December and April and May majority of the adivasis are unemployed

Rehabilitation

The two rehabilitation projects in Wynad made good progress in bettering the lot of the tribals Sugandhagiri Tribal Project, the largest adivasi settlement project in Kerala, was started by the State Government in 1977 at Vaithiri has rehabilitated 715 tribal families The inmates of the project cleared 800 hectares of forest land for cardamom cultivation, 133 hectares for coffee, 160 hectares for pepper, 42 hectares for fuel trees and 21 hectares for mulbarry cultivation All the men and women working here are given equal pay Women workers have maternity benefits and four balwadis, four creches and three lower primar schools are functioning here.

Priyadarshini, the second projec set up by Government at Panchara kolli in 1985 has rehabilitated 8 tribal families who were release from bonded labour It plans t convert 425 acres of forest land int tea plantation by 1994 and alread 250 acres have been developec Besides tea—coffee, pepper an mulbarry are being planted here Various types of saving schemes hav also been introduced and all hav been insured under the Janat Accident Scheme 140 houses hav been built for the inmates wit modern sanitation facilities

The inmates of both these projec are now free from starvatio exploitation and opression The people, who have been under dark ness for a long time are slowl marching towards the bright sur shine of progress Various welfa programmes and establishment cultural contracts with the non-trib people have proved beneficia Distribution of surplus land, vario housing schemes, hospital faciliti and financial aids by the Governme have benefitted the tribals, though many more are still outside t purview of these schemes

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Health Guide

Welfare Of Disabled

THE World Health Organisation (WHO) has estimated that 10 per cent of the world population has one or more of the physical or mental disabilities According to the survey of handicapped conducted by National Sample Survey Organisation in 1991, 1 8 per cent of the population suffer from locomotor, speech and hearing and visual disabilities Studies undertaken by some research organisations indicate the extent of mental disability between 2 to 2 5 per cent of the population. National Sample Survey Organisation conducted another sample survey in July, 1991 to know the magnitude of the problem

So far nearly 10 per cent of the disabled population are covered with various rehabilitation services Concerted efforts in this direction started only since 1981—the International year of the Disabled The Eighth Plan outlay for handicapped welfare is Rs 214 crore The expenditure during 1992-93 for various schemes for handicapped welfare was 42 crore

The following schemes for handicapped people are in operation. (a) Grant-in-aid to Voluntary Organisations working for handicapped persons by providing education, training and rehabilitation facilities, (b) Assistance to disabled persons for purchase/fitting of aids and appliances, (c) Scholarships to handicapped students for pursuing education from Class IX onwards

The four National Institutes in each area of disability are the premier apex level organisations in their respective fields in the areas of education, development of manpower, training, vocational guidance, counselling, research, development of suitable services models and low cost rehabilitation aids for the handicapped Two other organisations, namely, Institute for the Physically Handicapped and National Institute for Rehabilitation, Training and Research (Orissa) are service centres for the physically handicapped with facilities for training physiotherapists, occupational therapists and prosthetics technicians etc

For the services of handicapped persons in rural areas, a pilot project called District Rehabilitation Centre was started during VII Plan in selected districts The programme is being expanded during the VIII Plan to cover all the districts in the country.

The Government has set up Rehabilitation Council to enforce uniform standards in training courses in the field of rehabilitation throughout the country The Council has now been converted into statutory body through an Act of Parliament

It has been decided in the meeting of National Council of Handicapped welfare that a National Trust for people belonging to all disabilities should be set up with contributions from philanthropists, charitable individuals and organisations from within the country and abroad

In the Group of Ministers Meeting at Montreal, Canada held recently, the Welfare Minister has appealed to set up a United Nations agency for looking into the problem of disabled and to plan, coordinate, execute and monitor the disability related programmes

Cholera Prevention—Do's And Dont's

Do's

— Use only potable water
— Add chlorine tablets in case drinking water is unsafe
— Always wash your hands before taking meals.
— Keep the surroundings clean
— During an episode of diarrhoea use Oral Rehydration Therapy (ORT) at domicillary level.
— Garbage should be properly disposed
— Drain out water from Air-Coolers periodically at regular intervals to avoid breeding of mosquitos.

Dont's

— Do not take exposed and cut fruit and food articles.
— Do not allow water to collect and stagnate in the surroundings
— Do not use shallow water for drinking and cooking.

Cholera and other diarrhoeal diseases are basically due to polluted/contaminated drinking water A large incidence of such disease stakes place almost all over the country

(Contd. on page 19)

Bijnor Model—Forests In The City

THE 'City Forest Programme', a unique tree plantation programme launched by the Uttar Pradesh Government on June 24 at Bijnor is all set to change the urban face of the State. To be replicated in 50 other towns too in the near future, the Bijnore programme is linked with the National Literacy Programme.

Bijnor, the northernmost district in Moradabad Division of Uttar Pradesh has a population of around 2,00,000. The total area of natural forests in and around Bijnor is only 9 4 per cent of the geographical area of the district This is quite low as per the National Forest Policy norm of 33.3 per cent and UP State's norm of 17 per cent

The City Forest Programme implemented by the Social Forestry Division Bijnor is intended to act like the lungs of the city and help protect the ecosystem The 'city forest' is designed as a compact area and easily accessible from the city Numerous variety of trees will be planted in the forest

Since the proposed site of the 'city forest' is in the ponding region of Ganga, the scheme will help in reclamation of land as well as check erosion. The project will also help increase and preserve the wildlife, found in the region Further it will create environmental awareness amongst the inhabitants of the urban area, especially the children

The city forest project is expected to cost around Rs 42.51 lakh. The project will be mainly financed by DRDA, Bijnor as per the latest instructions issued by the Rural Development Department for dovetailing District Rural Development Agency (DRDA) funds with that of the Forest Department. An amount of Rs. 52,000 will also be provided from the District Plan of Forest Department

The project area is divided into 8 blocks of 10 hectares, each separated by roads Crisscrossing the main path, will be bridle lanes Nursery raised tall transplants will be planted in the pits on high land and on mounds in the limited area susceptible to inundation during the rainy season It is estimated that about 1 6 lakh plants will be needed for the entire area Holes have already been dug for around 80,000 plants

All Varieties

Fast growing species of economic and industrial importance will be carried out in the city forest Species like shisham, mango and arjun will be planted in mono culture plantations and species like siris, kanji, bakain, papri, jangal jalebi will be planted in mixed plantations On the ornamental side, cassia simea, acacia and casurina have been selected And for landscaping calendra, sawani and chandni will be used There are also plans for grasslands in the midst of the forest The existing forests in Bijnor have Shiwalik Sal, dry plain Sal, Dhak, Bel and Khajoor

Every block of the city forest will be having a bore well and channels to irrigate. A total of 8 borings and 2 diesel engines of 8 Horse Power each will be required for the project

A five hectare block selected to be developed as Smriti Van where individuals can plant trees in the memory of their dear ones or to commemorate any event of their life. Schools, colleges and Non-Governmntal Organisations could also plant trees in the name of their institutions and organisations A sum of Rs 100 per tree have to be paid for planting trees in the 'Smriti Van' The fee realised will be utilised by the Forest Department towards the maintenance and aftercare of these trees

The city forestry scheme is also proposed to be linked to the Jawahar Rozgar Yojana □

(Contd. from page 18)

during the monsoon period. Water borne diseases are generally transmitted through oral route due to contamination of drinking water source and food with feacal matter and poor personal hygiene

The steps taken to prevent such outbreaks include surveillance and monitoring of these diseases, supply of safe drinking water and chlorination of unsafe drinking water sources, safe disposal of human excreta, garbage and refuse, improvement of food and personal hygiene, promotion of ORT in case of dehydration due to diarrhoeal diseases and providing health care facilities by strengthening health infrastructure in rural and urban areas Other measures include strengthening of health education measures, giving detailed information about various water borne diseases and their prevention to the people giving guidelines to the health personnel for prevention, improvement of environmental sanitation and training of medical staff engaged in the activities to impart knowledge and skill for house management of diarrhoea □

Greening Rann Of Kutch

R.K.A. Jaswani

THE Indian Army in addition to its traditional roles of peace-keeping and disaster relief is now increasingly involving itself in protecting and improving the environment No doubt, the Army is uniquely placed to perform this task as it is spread over the entire length and breadth of the country including remote deserts and other inaccessible areas

The Rann of Kutch, one of the ecologically crucial areas in Western India, is the focus of attention of the environment programmes of the Army Kutch is one of the largest districts in Gujarat covering approximately 1,61,414 sq miles i e 25 per cent of the State's total geographical area The desert of Rajasthan and Sindh alongwith saline waters of Arabian Sea greatly affect the flora and fauna of Kutch

Greening of waterlands in Kutch is the priority of the Army The Army has adopted a three-pronged plantation plan to preserve and improve the environment plantation of trees in unit lines and surrounding areas, ecological restoration in cantonment areas through social forestry and finally plantation of special variety salinity resistant trees in the Rann

A large nursery has been set up by the Army which meets the sapling requirements of the cantonments Nearly one lakh saplings of local and hardy species like Neem, Gulmohar, Saru, Mithi Amli, Kasid, Jamphal, Sirus, Mithi Babul and Coconut were planted during 1991 successfully A project has been undertaken by the Army in conjunction with the State Forest Department to systematically control the growth of Presppis Juli Flora, a hard shrub and to propagate the concept of grazing areas

The challenge of greening the Rann by the Army is the first attempt made by any public or private body It has organised a programme of tree plantation with full dedication In the border areas, tree plantation has been undertaken on a large scale and aerial spray of grass seeds was also done Seventy thousand trees were planted in forward areas last season The salinity of the soil has been considerably reduced due to heavy rains

The Rann is a vast expanse of plains covered with thick layers of salt mixed with sand and clay It is devoid of vegetation and habitation The rainfall in the district is scanty and it rains from 91 mm to 350 mm per year on an average

Seminar

A three-day seminar on the ecology of Kutch was held in the Army cantonment last year with the cooperation of Bombay Natural History Society, Wild Life, Army Environmental Group and Indian Research Organisation One thousand saplings were planted on this occassion by the jawans in the cantonment The aim of the seminar was to study the flora and fauna of the Kutch region and their effects on environment and recommend concrete measures to check further imbalance in the ecology.

The seminar suggested that Israeli Babool, Neem, Pilu and Palm trees are more suitable in the Rann Attempts are now being made to propagate Jatropha Curcas plant in this region as it can grow in a variety of climatic conditions Traditionally, the plant is used for medicine, pesticide, cosmetic and hedges but is s potential substitute for diesel fuel It is hoped that the ecology development programme will succeed with the cooperation of the Central Arid Zone Institute, a Central Government organisation

The Indian Army knows for its courage and bravery all over the world is now poised to fight the greatest enemy of mankind—ecological imbalance. As in the war front, no doubt it will succeed in this mission also. □

Drug Abuse: Dimension And Fighting The Evil

Dr. M.C. Paul

SINCE the mid-nineteenth century, drug abuse has been spreading world-wide. Today drug-trafficking is the fastest growing industry in the world It has a yearly turnover of 1200 billion dollars. It has now been recognised as a global problem as it has spread its tentacles to every nook and corner of the globe The World Health Organisation has estimated the number of drug addicts in the world to over five crore The international trade in narcotics and psychotropic substances has become so lucrative a business today that many drug mafias and syndicates have surfaced all over the world They have spread their diversified networks from extortion to gambling, peddling to terrorism to control the global politico economic system Their underworld involvement is such that the US government had to earmark 258 million dollars for drug prevention in the first quarter of 1989 The problem needs to be tackled at an international level because the evil is tightening its grip on the human race with fast pace

In India the problem of drug production, trafficking and addiction is growing An increasing number of youth, irrespective of socio-economic strata they belong to, is getting addicted India now tops the list of opium producers in the World. It produces 400 tonnes of opium per annum Illegal production was estimated to be around 1160 tonnes. India is also recognised internationally as an important drug producing nation Statistics available with the police, law enforcement agencies, voluntary drug de-addiction centres etc also show a rising trend and proliferation of drug abuse It is said in a report of International Bureau of Narcotics that the narcotics trade in India involves around Rs 5,000 crore per annum According to a study, about one million people in India consume heroin, two million are opium users and several million take cannabis.

The problem of drug abuse in India was not so serious upto the seventies It was only after the dethronement of the Shah of Iran, followed by Iran-Iraq War and Afgan invasion, that the main transit of the "Golden Crescent" was taken and the drug traffickers looked towards Bombay as a transit zone for entry of drugs to the US and other European countries At one point of time, Nigeria and Mauritius were used as transit zones by drug pushers They use various alternative routes depending upon the exigencies.

According to another study the germination of the problem of drug addiction in India was almost completed by 1985 It was estimated city-wise that there was 80,000 drug addicts in Bombay and one lakh in Delhi alone A sizeable number was estimated in other metropolitan cities like Calcutta and Madras Some amount of hard drugs is produced in the country and a considerable amount comes from across the border from Pakistan The synthetic drugs like heroin, smack, cocaine, marijuana, morphine, brown sugar, LSD, etc are now available in every Indian city The menace of drug abuse in the frontier States like Manipur, Sikkim, Nagaland is alarming. Alongwith drugs, the AIDS is also increasing alarmingly in these States among the youth who take drugs through intra-venous injection. Now, the addicts are no more confined to the elite and moneyed class, students of universities, colleges, schools are also in the line A sizeable number of addicts are from amongst the truck/taxi/scooter drivers, shoe-shine boys, unemployed youth and labourers In many cases they are not only the sellers but also the consumers

The USA is one of the major importer of opium from India It imports 80 per cent of its total import from India as India and Turkey are the two traditional producers of opiate raw materials It is found that there is a leakage of this illicit producuts of opium from the growing areas and notified tracts of Madhya Pradesh, Uttar Pradesh and Rajasthan with a view to converting it into heroin production Says a report, the price of one kilogram of heroin varies from Rs 30,000 in Pakistan to Rs 1 lakh in Delhi metropolis, Rs 2 lakh in Bombay metropolis, to $ 1,00,000 in USA. When it lands finally to the consumers on the streets of USA it costs about $ 10,00,000 per kilogram The problem of drugs in India is, therefore, not production, and its trafficking but it's abuse as well More and more young people, due to

one reason or the other, are increasingly falling prey to drugs. Research studies indicated that people who use drugs like cocaine are prone to the risk of abnormal progeny, that is, offsprings, with nervous, hormonal and other abnormal behavioural problems.

A survery conducted in Delhi mentioned that majority of the addicts are young and they are from the lower strata of the society Heroin and smack addiction is becoming popular among slum-dwellers, who can hardly manager more than a square meal a day Easy availability of drugs and the association of these people in the illicit drug trafficking, in retail sale, are the reasons for the widespread drug menace. Heroin, of course, cuts down two basic human drives. sex and hunger

Drug abuse is a multi-factoral and multi-faceted problem and it needs to be studied through an interdisciplinary approach Sociologists and psychologists should undertake scientific research studies in this area to understand the problem of drug abuse and its implication in the society.

New Pasture

West Bengal in fast becoming a marijuana cultivating State It has been found that several districts are growing in large scale the plants of marijuana and opium The districts where a large acreage of land is brought under cultivation are 24 Parganas, Midnapore, Nadia, Bankura, Purulia, Howrah etc of late peasant have taken to it, because it is easy to grow with normal rainfall Moreover, it requires minimum sttention and gives higher returns as "cash crops" Many people have switched over to poppy cultivation due to heavy demands.

The heroin addiction in Calcutta and elsewhere, though less severe than in other metropolises like Bombay and Delhi, continues to rise. It is said that it will attain alarming proportions soon. In a survey the number of addicts in the State is estimated to be around 2,00,000 and they are within the age group of 15-40 years. The highest incidence of heroin addiction has been detected in the rural areas of West Dinajpur, Burdwan and Murshidabad. In Calcutta proper, 96 per cent of the addicts are males and the remaining 4 per cent are females There is an alarming trend of young people turning addicts in the districts of Darjeeling, Jalpaiguri, Burdwan and Bankura It is reported that the drug pedlars operate from Sealdah, Rajabazar, Kidderpore, Ekbalpur, Santoshpur, Barrackpore, Naihati, Jagaddal, Barasat and Bsirhat In Howrah, drugs are procured mainly from U.P. but in Hoogly, Bankura and Midnapore, drugs come from Calcutta In some districts bordering Bangladesh, a large number of women addicts are engaged is smuggling drugs from across the border Addiction to pethidine, LSD and other tranquillizers has been noticed in Maldah district also

The addiction evil is threatening the very fabric of our society and eating away the vitals of the nation, that is, the youth who are the backbone of our Society Drug abuse *per se* is not a problem of just of an individual and his or her family It sparks off inevitably a vicious circle of other evils like seduction, black-mail, murder, criminalization, AIDS, terrorism etc. and the society at large has to bear the brunt of it

Legal Remedies

The Narcotic Drugs and Psychotropic Substances (NDPS) Act of 1985, and its subsequent amendment in 1988, was made by the Government of India of tackle the problem of drug production, trafficking and abuse However, the Act has not been effective enough in curbing the illegal trade in narcotics and its abuses. Small time operators and ordinary addicts rather than the organised mafia or dealers are usually arrested and prosecuted. Further, the Act follows in human approach towards the ordinary drug addicts. The World Health Organisation classified drug addiction as a 'disease'. Similarly, the Diagnostic and Statistics Manual of Psychiatry also categorised it as "disease". But the Indian Act equates the "addict" to a "criminal". When sentenced to jail these condemned innocent addicts turn themselves into hardened criminals. Instead of solving the problem they weigh heavier on society The 'hardened criminals' in turn become the 'assests' to the drug mafias and traffickers later on.

Thus, under the prevailing circumstances, it is usually felt that the laws have to be made stringent prescribing rigorous punishment to drug producers, mafias, and traffickers The enforcement departments have to be well organized to get hold of the mafia chiefs, and their agents. On the other hand, a more humane approach is to be prescribed in the treatment of young addicts who have fallen prey to drug addiction due to one reason or the other Thus what we need is motivation, detoxification and rehabilitation of addicts who are in the productive age group rather than punishment Along with it, preventive programmes in terms of awareness about the evils of addiction are to be dismenated to the society as whole People's participation is very crucial here to tackle it effectively

Studies have identified the following factors that lead to drug addiction problems among the youth These are: (i) growing mental stress and strains, (ii) disintegration of family organisation and relationships, (iii) Socio-economic disparities, (iv) rapid pace of urbanization and modernisation process; (v) mass unemployment; (vi) illeteracy,

(Contd. on page 30)

Blue Green Algae

A.R. Patel

NITROGEN is one of the most essential fertilizers for plants and crops. Though it constitutes over 70 per cent of our atmosphere, the crop plants are unable to exploit it directly from the nature. To support crop plant are unable to exploit it directly from the nature. To support crop production at the levels contemplated during the Eighth plan, the fertilizer consumption will have to increase to 18 3 m tonnes from 11.3 m tonnes in the final year of the seventh plan The consumption of nitrogenous fertilizers alone will be to the tune of 11 5 m tonnes

Increasing cost of fertilzers, reduction/abolition of subsidy, widening gap between the supply and demand together with low level of purchasing power of the majority of Indian farmers have indeed created a most embarrassing problem. It is therefore time to think for some of the alternative natural resources to meet part of our nitrogen requirements and to relieve the pressure on the chemical fertilizers.

There are, few micro-organisms that are endowed with the capacity of utilising atmosphere nitrogen directly These micro-organisms are capable of converting atmospheric nitrogen into ammonia from which all other nitrogenous compounds can be synthesized in the microbial cell This process is called biological nitrogen fixation. The following three types of organisms are capable of biological nitrogen fixation process

- symbiotic bacteria like Rhizobium spp. which fix between 50 and 250 kg N per hectare per year in root nodules of legumes.
- other free living bacteria like Azotobacter, Azospirillium etc which fix 0 5 to 15 kg N per hectare per year
- free living blue green algae (BGA) in rice fields which fix 15 to 50 kg N per hectare per year

Blue Green Algae

Blue Green Algae are widely distributed in moist to water logged paddy fields in India and in general they are found abundantly when conditions for their growth are favourable for a particular period of the entire cropping season. It has been reported that inoculation of BGA could increase the paddy yield as obtained with 20 to 30 kg nitrogen per hectare by chemical nitrogenous fertiliser The important aspects in BGA bio fertiliser technology are their natural occurence, cultivation, storage, supply, inoculation, interaction with native forms and environment, growth of inoculation, effect of grown BGA on the rice plants and soil fertility The amount of nitrogen fixed in paddy fields by BGA depends on their growth and fixation varied from few Kg to 50 Kg nitrogen per hectare per season, although data on measurments in Indian paddy fields using recent techniques under field conditions are not available. Only part of the fixed BGA nitrogen is available to the same standing rice crop with the result that in many instances although plenty of alga growth is observed rice crop does not show positive response. Although algai production technique is known since long, detailed information on the production technique under various environmental conditions and soil types, seasons water regime and competition of foreign algae with the native ones is lacking Under conditions of high temperature, less rains and high light intensity BGA multiply rapidly Freshly cultivated/collected BGA were found to be superior for inoculation to dried ones and generally dry season is found to be better for successful inoculation and rapid establishment. Standing water of a few centimetres to 30 cm deep supports growth of native and inoculated BGA whereas increasing the water depth affects adversely.

Usar soil can be sucessfully reclaimed through the blue green algae for the subsequent cultivation of crops like rice and sugarcane. The principle involved in the process of reclamation of usar soils is of waterlogging the latter, which is possible under field conditions only during the rainly season. If irrigation water is available in sufficient quantity at other times, the process can be repeated several times during the year. During the water-logged period,blue-green-algae appear in abundance and improvement of the soil is possible through their growth. After the first showers, the algae appear on the surface, and within a fortnight, or so form a compact stratum Later, when the ground is waterlogged, the algal carpet may become detached and float on the surface of the water The first set is

then gradually replaced by second set of algae, which are characteristic of rice fields and continue active growth as long as water remains It would be desirable to treat soil in this way two to three times a year and the method can evidently be applied to ameliorate usar soils in general The algal material incorporated in the soil through this method conserves the organic matter, nitrogen, phosphorus, moisture and consequently converts the sodium clay into calcium type

The blue-green-algae are often associated with the formation of calcareous deposits and many fresh water farms have the capacity to precipitate appreciable quantities of lime They are also equally capable of solubilising such substrates probably through secretion of oxalic acid Such effects of blue-green-algae may be helpful in the solubilisation of the 'kankar' of usar soils The added organic matter of the algae helps in binding the soil particles and floculating them. This leads to the improvement of soil permeability, aeration, tilth and other physical properties. Out of many important blue-green-algae involved in the process of reclamation, two of them deserves special mention Nostoc commune, the characteristic algae of the 'usar soils' which covers many miles of soil and fulfils an especially striking role, is a subaerial form This algae can be collected in large quantities and powdered with lime This powder when sprinkled on moist surface of 'user' soils begin to grow after a week of inoculation In this way it has been possible to introduce this algae where it does not occur naturally. Aulosira fertilissima, the dominent algae during the waterlogged period of the reclamation process abundantly found in rice fields.

Production

A simple rural oriented open air method for producing them in bulk has been developed at the IARI, New Delhi. The basic principle has been to grow them in natural sunlight under conditions stimulating these in rice fields. The starter culture-a soil based mixture of Auloxira, Tolypotherix, Nostoc, Anabaena and Plectonema is supplied by the IARI. The details of multiplication from the starter culture include (1) preparing trays 6' × 3' × 9' of galvanised ironsheet or brick and mortar or pits lined with polythene sheets (2) placing about 10 kg soil and mixing it with 200 grams of superphosphate. (3) filling water (2" to 5") depending upon the rate of evaporation. The PH of the soil should be around meutral. If acidic adjust with limes) (4) after the soil settles down, sprinkle saw dust and starter culture on the surface of standing water Trays should be kept exposed to sun (5) in hot summer months, the growth of the algae will be rapid and in about two weeks a thick algal mat will be formed If the daily rate of evaporation is high, add water intermittently when the algal growth becomes sufficiently thick, stop watering (6) allow the water to dry up Collect the dry algal flakes or scrape them off, store them in bags for use in fields (7) fill the trays again and add a small amount of water to the dry algal flakes, about a handful, as further inoculum Continue the process as above Once the soil in tray is exhausted (usually 3 harvests) put fresh soil, mix it with superphosphate and continue as before (8) to prevent the breeding of insects, add Folidol (0 001 PPM) or Malathion (0 00075 PPM) or Carbofuren (3% granules à 25 g/tray)

Since BGA has a unique role (i) in replacing/substituting/supplementing chemical fertilisers to meet nitrogen requirement for increasing paddy yields (ii) in the reclemation of usar lands and (iii) has the potential to create self employment among educated rural youth through its scientific production and distribution system in India, it is very essential to draw an action plan immediately to transfer the technology on one hand and intensify further research to resolve the emerging problems on the other.

Action plan to be formulated should have following components.

- documenting the details of the available proven technology developed by the research works in the field of BGA areawise in respect of (i) increseing paddy productivity (ii) reclamation of usar land and (iii) production technology of BGA
- testing the viability of the technology in specific areas
- demonstrating on a larger scale involving one demonstration for about 1000 ha, the effectiveness, technical feasibility and economic viability of the available technology among farmers, educated rural youths and bankers so as to make them believe and adopt the same for achieveing the desired objectives
- training the educated rural youths in respect of all minute details of production technology so to help them produce BGA and supply the same to farmers in their respective areas
- formulating two bankable schemes viz (i) scheme for financing farmers to use BGA and (ii) financing educated rural youth for production of BGA at field level Bankable schemes should contain all aspects of technical feasibility and economic viability linking the credit with services and supplies
- formulating area-based schemes for group of farmers in a village or for a group of villages seeking cooperation of bankers, NABARD farmers and educated rural youth
- motivating and encouraging educated rural youths to take up production of BGA and supply the starter/culture to the farmers on an extensive scale □

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Need To Boost Banking In H.P.

Harbans Lal Sharma

THE Indian banking scenario has undergone a great change since the nationalisation of fourteen major commercial banks in July 1969. The character of banking has changed from class banking to mass banking. Moreover, the commercial banks in India have witnessed a remarkable growth in their branch expansion, deposit mobilisation and deployment of credit. It is in this context, that an attempt has been made in the present paper to measure the growth of banking (with respect to branch expansion, deposit mobilisation, credit deployment and disbursal of priority sector advances) in Himachal Pradesh since the nationalisation of major commercial banks. Further, the performance of scheduled commercial banks in H P has been compared with that of the country as a whole.

The most spectacular aspect of banking development has been in relation to bank coverage. The number of bank branches in Himachal Pradesh, stood at 41 in June 1969, which shot up to 737 in June (Table No 1). Thus over a period of 23 years total number of bank branches in the State increased by about 18 times, registering an annual compound growth rate (CGR) of 13.38 per cent. On the other hand, at the all India level this increase was about 10 per cent per annum. As a consequence of massive branch expansion, population served per branch (PPB), which is a good indicator of the spread of banking, declined from 84,000 in 1969 to 7,000 in 1992. Thus, population served per branch in H P is much lower as compared to the all India level of 14,000 per branch. Another important indicator of the spread of banking has been branches per 10,000 square kilometre (BPK) area. In June 1969, there were only 7 branches per 10,000 square km which increased to 132 in June 1992. Thus, BPK witnessed a higher compound growth rate in H P than in the country as a whole.

There has been an impressive growth in deposit mobilisation in the State since the nationalisation. Total deposits of scheduled commercial banks in H P stood at Rs 12.38 crore in June 1969 which rose to Rs 1607.92 crore in June 1992, registering a CGR of 23.56 per cent per annum (Table No. 2). For all India, this increase was 19.61 per cent. As a result, the per capita deposits (PCD), deposits per 10,000 square kilometre (DPK) and deposits per branch (DPB) also increased considerably in Himachal Pradesh as well as at all India level. Table No. 2 reveals that PCD in H.P increased from Rs. 36 in June 1969 to Rs. 3109 in June 1992, witnessing a CGR of 21.39 per cent per annum. At the all India level, the PCD went up by 17.38 per cent per annum during the same period. Similarly, the deposits per 10,000 sq. km. increased from Rs. 222 lakh to Rs. 28,881 lakh (at an annual CGR of 23.57 per cent) and deposits per branch from Rs. 30 lakh to Rs. 218 lakh (at an annual CGR of 9 per cent) during June 1969—June 1992. Thus, H.P. witnessed a higher growth rate with respect to all the indicators of deposit mobilisation when compared with the all India level.

Credit Deployment

There has been a significant quantitative as well as qualitative change in the disbursal on bank credit in H P after nationalisation. Total advances of the scheduled commercial banks which stood at Rs

Table No. 1

Branch Expansion in Himachal Pradesh and India

	Major Indicators	June 1969		June 1992		CGR* (%)	
		H.P	India	H.P	India	H.P	India
I	Total No of Branches	41	6,669	737	60,906	13.38	10.09
i)	Population Served Per Branch)** (in thousands)	84	82	7	14	-10 24	-7 39
ii)	Branches per 10,000 Sq km	7	20	132	185	13 62	10 15

* Compound Growth rate

** For 1969 based on the population figures of 1971 census and for 1992 on 1991 census

Sources

i) Ministry of Finance, Economic Survey, Government of India, New Delhi, 1992-93

ii) Reserve Bank of India, Banking Statistics, Quarterly Handout, June 1992

Table No. 2

Growth of Commercial Bank Deposits in Himachal Pradesh and India

	Major Indicators	June 1969		June 1992		CGR %	
		H.P.	India	H.P.	India	H.P.	India
I	Total Bank Deposits (Rs Crores)	12 38	3,896.97	1,607 92	2,39,622 2	23 56	19 61
i)	Per-Capita Deposits (Rs)	36	71	3,109	2,831	21 39	17 38
ii)	Deposits Per 10,000 sq km (Rs lacs)	222	1185	28,881	72,894	23 57	19 61
iii)	Deposits per Branch (Rs lacs)	30	58	218	393	9 00	8 67

Source As per Table No 1

Table No. 3

Growth of Commercial Bank Credit in Himachal Pradesh and India

	Major Indicators	June 1969		June 1992		CGR %	
		H.P.	India	H.P.	India	H.P.	India
I	Total Advances (Rs crores)	3 49	3,034 60	529 84	1,47,899 6	24 40	18 41
i)	Per-Capita Advances (Rs)	10	55	1,024	1,747	22 29	16 22
ii)	Advances Per 10,000 sq km (Rs lacs)	63	923	9,517	44,992	24 38	18 41
iii)	Advances per branch (Rs lacs)	8	45	72	243	10 02	7 61
iv)	Share of Priority Secor in Total Advances (%)	2 7	14 9	61 0	40 7	14 52	4 46
v)	Credit-Deposit Ratio (%)	28 19	77 87	33 0	61 72	0 69	-1 00

Source as per Table No 1

3 49 cr in 1969, went up to Rs 529 84 cr in 1992, at an annual compound growth rate of 24 4 per cent (Table No 3) The increase at the all India level was at 18 41 per cent Further, during the reference period, per capita advances (PCA), advances per 10,000 sq km (APK) and advances per branch (APB) in H P also witnessed a higher compound growth rate as compared to that in the country as a whole

One more important indicator of the growth of banking in a particular state/area is the Credit-Deposit ratio This ratio shows how much of the deposits mobilised in a particular state/area is being utilised for providing credit in the same state area The commercial banks in H P showed a very poor performance with respect to C-D ratio, as they even didn't succeed to achieve the target of 60 per cent C-D ratio fixed by the RBI Table No 3 reveals that the C-D ratio in H P went up from 28 19% in 1969 to 33 0% in 1992, registering merely a compound growth rate of 0 69 per cent per annum On the other hand, at the all India level, the C-D ratio inspite of registering a decline of one per cent per annum, stood higher than 60 per cent during the reference period

The share of priority sector (which consists of agriculture, small scale industry, road & water transport operators, retail trade & small business, professions & self-employed, education and setting up of industrial estates upto June 1980 and onwards, it also includes indirect finance to other priority sectors, pure consumption loans and housing loans to weaker section & SC/ST) in H P increased from the level of 2 7 per cent to 61 per cent during the period under study. At all India level, the share of this sector went up from 15 per cent to 41 per cent during the same period Thus whereas at the all India level the commercial banks succeeded only to achieve the target fixed for the priority sector, in H P they showed a very good result in providing credit to the priority sector

To conclude, the study reveals that there has been a phenomenal growth of banking in Himachal Pradesh during 1969-1992 It witnessed a higher growth rate as compared to the country as a whole, with respect to all the indicators of branch expansion, deposit mobilisation and credit deployment Yet, much remains to be achieved as many indicators (BPK, DPK DPB, PCA, APK & APB) reveal that H P lags far behind when compared with the country as a whole □

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Sacred Memoirs Of A 'Quit India' Participant

Dr. Dhirubhai Thakar

FIFTY years have not even slightly erased my memories of the Quit India Movement Immediately after the Indian National Congress passed the Quit India Resolution in 1942, almost all the top leaders of the Congress were arrested by the Government The Quit India resolution had asked the people to sacrifice everything for achieving independence

People were asked to carry on the fight in their own way as their conscience dictated Government servants were urged to leave Government service, students were asked to give up studies and take up the national cause, labourers were called upon to go on strike and traders were advised to close their shops All of them readily responded to the call and scrupulously followed the instructions issued in the private circulars

First Martyr

During those days, I was in Ahmedabad teaching Gujarati in the Gujarat College, Ahmedabad August 9 was a Sunday and I had planned to go for a movie But as soon as I came out I could sense the commotion and excitement on the road Shops were closed Processions were being taken out in various parts of the city and police had started dispersing them by lathi charges and teargas The atmosphere was tense Umakant Kadia, the first martyr of Ahmedabad was shot dead near the Khadia Post Office in the afternoon

Next days a large crowd of young men and women gathered near L A Shah Law College to take a procession to the Congress House in Bhadra It was the girls who led the procession and a police van moved along with the procession As soon as the procession started, police started caning the students who then dispersed and entered the Gujarat college compound In a few moments, there was a huge gathering of students shouting slogans against the police There was a big uproar and in the melee a stone hit an European police officer The students were hardly at a distance of 8 to 10 feet when policemen were ordered to open fire I along with my colleagues was trying to pacify the students Instinctively, I ran in front to stop the policemen from advancing But a lathi blow sent me reeling to the ground unconscious. In the meantime the police opened fire

Several of the students were wounded Among them was an inter science student Vinod Kinariwala, who had refused to part with the tricolour He was shot at point blank by the police Kinariwala later died in the hospital More than a dozen freedom fighters belonging to Gujarat college were admitted in the hospital along with me The hospital ward looked like a war camp.

Police Raj

My name was included by the police in the black list and my movements were monitored Periodically the police questioned me to know the whereabouts of the workers But I continued to help the underground workers secretly by getting the 'Swaraj Patrika' cyclostyled and circulated and also by passing on the money to them through a secret channel I continued to talk to the students at length about the revolutionary movements in different countries

Dr Jayanti Thakor, a naturopathy practitioner was the chief of underground brigade of fighters He was called by the people of Ahmedabad as 'Saher Suba' (the supreme authority of the city) and his orders were scrupulously executed by the all people. Though police made desperate attempts to nab him, the people gave him all possible help to hide and escape

College students also extended their full support to 'Saher Suba' Gujarat College being a Government college was a frequent target of the attacks A system of identity card was introduced by the authorities for the first time and these were strictly checked at the college gate No classes were conducted since more than 90 per cent of the students were on strike

One day it was announced that the tricolour will be hoisted on top of the Arts Building of Gujarat college. The police took every possible step to foil the programme. Strict checking of identity cards was rigorously carried out. Nevertheless, a few girls smuggled in the flag and the flag was hoisted exactly at 12 noon as announced by 'Saher Suba' thus demonstrating the determination of the student community to have their country free. □

Books

CONTEMPORARY ISSUES IN GLOBAL TRADE AND FINANCE: By Malati Angol: Himalaya Publishing House, Bombay, 1993, Price: Rs. 275.

The book under review brings together the research papers published by the author in reputed journals in recent years in the area of global trade and finance Many of these papers have focus on India in the global context The implications of happenings in global trade, external debt, global financial markets and instruments are analysed from the point of view of developing countries in general and India in particular The volume includes research papers grouped under the following heads.

1) Globalisation of Finance
2) Selected Issues in External Debt
3) Divergent Trends in Global Trading Scenario
4) Major Trends in World Economy

The book notes that the whole thrust of changes in International finance since the early 1980s has been on financial integration across the countries brought through liberalisation of financial activities and large scale financial/technical innovation, resulting in intense competition, efficiency and flexibility The process is far from complete and in 1990 it is poised to witness further integration of the global financial system.

Many of the innovations, in particular, international transactions, could not have been feasible without technological developments in the field of communication. The technological advances have made it possible for market participants to act faster and in larger degree than ever before to any amount of new information emanating from enywhere in the world. Further, the advances in computer and telecommunication technology have made possible the integration of financial markets of major industrialised countries into a multi-centre global financial market with 24 hour trading at three key centres—New Yourk, London and Tokyo. The use of computer trading have irrevocably changed the functioning of the stock-exchange markets

On external commercial borrowings the books notes that India should resort to it only in a limited scale Borrowing units should be allowed access to markets only for financing import requirements and not as substitute for domestic financing either because external funds are cheaper or because they are readily available Projects, selected should be export oriented or for technological upgradation to improve quality and competitiveness of Indian exports abroad. In the context of India's external debt repayment problem, the author observes that a progressive shift to non-debt creating sources of finance such as direct foreign investment is overdue

The author's observation on the Dunkel Draft is also quite noteworthy. She observes that in view of the fact that no viable or better bilateral or trading block alternative is available to India, the multilateral agreement as proposed in the Dunkel Draft, with certain modifications, is the best bet for India. India's concerns centre around textiles, trade related intellectual property rights and services. India would have to strive hard to secure adequate improvements in these areas in the Draft Final Act, notes the author.

On the future prospects of the world economy, it is observed that as the industrial countries move into the 21st century, the world economy will be fast changing from an industrial to a post-industrial society. The resource fuelling this rapid transformation is knowledge as against physical and capital accumulation. The knowledge areas which are at its leading edge with the fastest projected growth rate are: computer science, genetic engineering, robotics and automation, telecommunication, computer hardware, renewable energy, deep sea fishing, oil and new materials and electronics. Since most of these disciplines have large component of knowledge, the author is optimistic that the Indian comunity while advancing rapidly to catch up with the industrial countries will simultaneously share in the advancement and growth of the post industrial information explosion.

The book throws light on a number of vital issues of the day relating to international finance and trade The exposition is relevant from the point of view of the world economy and also for India.

P.V. Rajeev

ECONOMIC CRISIS IN INDIA—AN ALTERNATIVE PERSPECTIVE: by K.N. Kabra; Khama Publishers, 21-D, Nivedita Enclave, A-6, Paschim Vihar, New Delhi, PP. 119; Price Rs. 170.

The book is divided into three parts, viz Economic Crisis in India, Public Distribution system, and Menace of Black Economy. Prof Kabra, the author, very appropriately observes that Indian Economy is passing through a critical period. He has opined that external debts have been used as short-run soft option for providing budgetary resources. He

points out that the structural reforms advocated by the economists have been the off-shoot of the programmes of World Bank and I.M.F. One redeeming feature about the treatise is that it focusses on the deficiencies in the conventional analysis resulting in uncontrolled inflation and the consequent negation of domestic set-up. He contends that excessive imports also contributed to B.O.P. (Balance of Payment) crisis. It is imports that led to the growth of output and not the vice-versa. The author very aptly refers to the people centred development approach which is based on the perception that people have to be the torch bearer of their destiny utilising all the institutional possibilities. Referring to the Union budget of 1991-92, the author is of the view that the process of economic liberalization with consequent effects of privatization seems to be the dominant ideological concern of the west and is shared by our policy makers

Coming to the chapter on Public Distribution System (PDS) the author analyses how the State is subjected to the interests of the bureaucrats and relegates both the poor and the honest citizens to the background. He stressed that the role of PDS cannot be overlooked P D.S is one of the more durable feature of the State intervention in the market He therefore, suggests the streamlining of the PDS in the following manner First, procurement operations to be enlarged reaching every state. Second, this is a step which must proceed pari passu with increased supplies made available through Fair Price Shop

And finally, delineating the chapter on "Menace of Black Economy" the author correctly assesses the operation of black money in the economy and recommends measures for using this for socially useful purposes. In the forthcoming topic, i.e. the formulation of citizen identification number and identity cards, he argues that out of ignorance, carelessness an individual may furnish incorrect information. As society becomes more organized the need for varifiable identification of individual citizen increases. The author's programme on policy package curbing the ill-effects of black money speaks of his erudition. As he very succinctly suggests, among others, the following measures (1) Pooling of all direct tax returns from all regions (2) Unexplored incomes should fully pass on to the State (3) Higher tax rate on non-salary incomes (4) For Wealth tax, gross family wealth should be the tax base etc

The above volume will be of immense use to the development policy planners, civil servants, and tax administrator The student community should find this book extremely thought provoking and informative.

S.C. Lahiry

SERVICE AREA APPROACH: LEAD BANK SCHEME: By N.K. Juneja; Manas Publications, 29 Central Market, Ashoka Vihar Phase I, Delhi 110092; 1992, Pages 238; Price Rs. 290.

The Reserve Bank of India introduced Lead Bank Scheme in 1969 and subsequently Service Area Approach commenced on 14.3.1988 with the issuance of instructions to both commercial and cooperative banks Both the scheme and approach were aiming to give a fillip to our rural development agencies operating incredit disbursement in villages. During this exercise many practical problems cropped up being faced by grass root level functionaries and respective guidelines were issued from time to time for smooth functioning.

Broadly, this publication deals with all the procedures, methodologies with up to date information and date including various survey and seminar conclusions relating to fruitful and futile experiences. In 1968, a study group headed by Prof. D.R. Gadgil recommended for efficient rural lending. The area approach was to be made through lead bank scheme, opening krishi kendras, agriculture development branches, village adoption and implementation of area specific scheme. For specific area approach lead banks are to be directive, coordinative and guiding agency in districts and blocks. In this scheme, a particular commercial bank will take lead role in a district and other financial institutions and banks will work in coordination with lead bank to fulfil social objectives of national policy of raising income of weaker sections of the society in rural areas by disbursing credit efficiently. Village adoption scheme was started in 1977 and each branch was supposed to choose one or more villages for meeting the entire credit and avoid duplication. Specific Area Approach was also undertaken for measuring credit potential and to complete the job in time Then Assessment Reports were to be submitted to the NABARD (National Bank for Agriculture and Rural Development) for availing of re-finance against bank loan. Lead Bank conducts surveys, identify centres, opening new branches to make viable infrastructure

Further to this end, Reserve Bank of India had to undertake study of two districts—one lead district and other non-lead district to assess the work of desired efficiency of lead bank Bank officials are advised to stay in villages for practical surveys and studies and such surveys were conducted in 88 districts of 21 States of India. The lead bank scheme has to achieve the national plan objectives viz. i) removal of unemployment and under employment ii) raising standard of living of the poorest sections of society iii) providing basic needs of

poor through increasing production, productivity, employment venues and promoting balanced development of different districts within a state and blocks within the districts by making optimum use of land, labour and financial resources.

The most important part of the book is the conclusions of those studies in villages conducted for RBI credit planning. It is here that authentic data on various profiles of the villages are available. Hence the computarisation process at the DRDAs (District Rural Development Agency) should be fully utilised to complete such data. Since the village profile data is inadequate and defective, the village credit plans could not be made realistic and authentic in many cases Secondly, details of State sponsored scheme are not available in time and this creates problems in the finalisation of credit plans.

The extension services, particularly in respect of agriculture are found to be lacking in several regions. Unless Government departments do something, banks can not achieve the desire results. In many cases follow up action is totally ignored. Some borrowers complained that they had to grease palms to obtain land records. One suggestion was that post extension work be taken by Banks since Government departments are not providing results in time Most RRBs are running at loss

Chapter No. 11 of this book deals with Issues and Solutions which is also full of information. In this chapter, it is observed that branch managers are from urban and semi urban areas without agricultural education. Their surveys are incomplete and of poor quality. Some solutions have also been suggested side by side which are useful for further acceleration of work.

In other chapter guidelines of NABARD, Planning and development of villages, identification and allocation of villages, preparation of credit plans, implemention, monitoring, preparing LBR returns etc. have been dealt with complete annexures. The book certainly portrays a complete picture of the Lead Bank Scheme in 238 pages in 13 chapters. However, more than half the pages are devoted to annexures and graphs etc. This may be useful to the bank people but of little use to general readers

Shakti Trivedi

(Contd. from page 22)

(vii) fast erosion of moral and spiritual values; (viii) ruthless exploitation of humanity for quick personal gains; and (ix) the increased illegal production and easy availability of narcotic drugs in the society.

In a nutshell, we know that every nation's goal is to protect the health of its citizens and the society. But illegal drug production, trafficking and abuse considerably retard the development of productive human resources. Moreover, the increasing abuse of drug and massive build-up of powerful drug mafias and syndicates are indications of socio-economic crises the societies all over the world is undergoing.

Excessive use of drugs results in anti-social behaviour, maladjustment of the victims in the social relationships and major disorganisation of the socio-cultural system. It is a fact that once a person is hooked to drugs, he or she continues with it as drugs dampen anxiety and frustration over the future, help him relax from tension and takes him to the El Dorado of his dream. The necessity of obtaining a drug from illicit sources often exposes the users to persons involved in drug trafficking and deviant behaviour. Drug abuse directly affects and changes attitudes, beliefs, and values. It acts as a catalyst in making an individual more vulnerable to the influences of other deviant sub-culture.

We need to have different realistic strategies to prevent, treat, motivate and rehabilitate the addicts through a more humane approach and consideration Nobel laureate Mother Teresa once said "the addicts should not be ostracised from society. Why they smoke is not known. So they should not be condemned. They should be made to feel that they are wanted They should also feel they are cared for." We should not forget that the drug addicts are "assets" in the hands of anti-national organised mafia. Hence, the genesis of drug addiction among the youth should be identified and solved through the advent of a balanced socio-economic egalitarian order. Only then can the problem of drugs be 'minimised', if not totally, stopped, to usher in a healthier future for humanity. ☐

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Exit Of Unviable Units Recommended

Mahesh Prasad

THE process of restructuring of the Indian economy has largely remained incomplete in the absence of an efficient mechanism for the rehabilitation of sick and winding up of unviable industrial units The new Industrial Policy, announced in July 1991, had eliminated the process of industrial licensing for a large number of industries and dereserved all but 18 industries from the list for the exclusive entry of the public sector. It had, however, not strengthened the machinery to deal with industrial sickness, which has become widespread over the years, and guaranteeing the right to entry had not provided the right to exit It has been the persistent demand of both the domestic industry and foreign investors, whom the government has been soliciting, that it should announce an exit policy The Onkar Goswami Committee has dealt with all aspects of industrial sickness and restructuring, including the right to exit in a very comprehensive manner It has identified financial sector reforms as the key element in restructuring and reorganising the industrial sector and suggested amendment to various laws, including the Sick Industrial Companies Act (SICA), to facilitate the process

As the Committee itself says the long term success of India's economic reform process depends upon sustained growth in industrial output and investment Without this, there cannot be a genuinely competitive industrial base from where India can launch an export drive to systematically reduce its debt service obligations over time The Committee says industrial sector reform is not just eliminating licensing and other barriers to entry It requires giving signals to potential entrepreneurs about the scope for operational flexibility—in the choice of output, of markets, and in the use of labour and capital Industrial restructuring, it says, involves commercially reorganising ailing, but economically viable firms, facilitating the withdrawal of unviable ones and reutilising the land and labour thus freed in the best possible manner Having said this, the Committee expresses its unanimous view that barriers to industrial and corporate restructuring serve no economic goal and are anti-labour Although the restraints seek to protect the labour in the short run, these actually harm long and medium term employment by eliminating growth possibilities

Over the years, industrial sickness, which refers to an industrial or a manufacturing firm, performing systematically worse than average, not covering its fixed costs and frequently reneging on its debt repayment obligations, has become pervasive in the country. It is pervasive across ownership—public or private—across industries, across states and across scale—small, medium and large. The extent of sickness could be seen from the amount of outstanding credit to sick units, which has gone up from Rs 2,585 crore in 1982 to Rs 9,353 crore in 1989, growing at the rate of 18 4 per cent compound per year In the public sector, there were 98 loss making Central government non-departmental companies and their total losses amounted to Rs. 1,959 crore in 1989-90

The Committee has recommended a package of measures, which it claims would not only go a long way in ameliorating industrial sickness "but, more importantly will create a much more economically rational, market driven, competitive industrial structure, which is governed by far fewer contradictory and perverse signals than before" The report covers a broad spectrum of issues, such as SICA and the working of BIFR, project appraisal by financial institutions, corporate law, land and labour laws, the role of the Reserve Bank of India, financial instruments in debt-equity conversion and development finance

Terming SICA as 'Backward' looking and BIFR process as 'time consuming', the Committee has suggested changes in SICA definitions and organisational changes in the

BIFR to address the basic issues in industrial restructuring It has also presented a legal draft of an amended SICA that incorporates most of its suggestions. It has suggested that three phrases, "preventive", "ameliorative", and "remedial", need to be omitted from the preamble to SICA--all closely related to 'rehabilitation'. Instead it is necessary to incorporate the basic idea that SICA is meant to promptly decide, through a single facilitating agency, the case for reorganising ailing companies either through feasible reconditioning of its assets and liabilities, or through rapid winding up and quick sale and distribution of its assets It has also suggested that a sick company's own reference to BIFR should be voluntary, not mandatory This is with a view to giving freedom to the firm and its secured creditors to work out a reorganisation package outside of BIFR and, hence lessen the administrative burden It suggests that the new SICA should eliminate altogether the negative networth criterion The definition of sickness should change to default of 180 days or more to term lending institutions, or irregularities in cash credit or working capital for 180 days or more

Under the procedure set out by the Committee, when a company thus turns sick', the secured creditor would have the option of moving High Courts or Recovery Tribunals to recover secured assets of the company If the company refers to BIFR, the Board would instruct the management or promoter to prepare a reorganisation plan within 90 days that can satisfy the secured creditors If creditors representing three-fourths of the secured debt were satisfied by the plan, it would become a sanctioned scheme of the BIFR If not, then the Board would give the firm one last attempt to prepare an alternative plan within another 60 days in consultation with the secured creditors, the government and labour If the second plan is not accepted by creditors representing more than three-fourths of the creditors of the secured debt, then BIFR would automatically recommend the company to the Recovery Tribunals or to be wound up under Section 20(4) of SICA The Committee has recommended that there should be deeming provision in this regard in the amended SICA once the 150-day deadline has passed without a scheme being sanctioned

Facilitator

Having taken the view that the main reason for delays in BIFR proceedings is its quasi-judicial nature, the Committee visualises the Board to play the role of a fast-track facilitator and, occasionally an arbitrator This is all the more essential as the Committee desires early detection, which would mean more cases, even when references are voluntary To ensure that BFIR plays the role of a fast-track facilitator, the Committee has suggested that it should be a forum for decision-making and not for seeking clarifications and explanations and that it should give a specific date for next hearing, if necessary itself and not leave it to officials Besides, it has appropriately suggested that the existing vacancies to BIFR at the bench level should be filled by appointing eight members, who are experts in finance, taxation and corporate law, as also upgrading of human resource and skills within BIFR Moreover, it says that it was essential for BIFR to use the winding up provisions of section 20(4) of SICA more frequently, not only to expedite the sale of economically unviable firms, but also as a threat to force the pace of decision-making and consensus among various parties

Calling for early implementation of financial sector reforms as recommended by the Narasimham Committee, the Goswami Committee says, RBI's guidelines for rehabilitation must be altered to abjure the notion of sacrifices and instead address the basic issues in appraisal, such as no write off on new loans If partial write off is necessary, it should be explicit and only on past debt and the non-written off exposure to be charged and discounted at market rates of interst Whenever write offs are taken, these should be in the form of debt-equity conversions The Committee has suggested that the Central Board of Direct Taxes (CBDT) should remove all tax hurdles that prevent banks and financial institutions from converting debt to equity of sick companies, particularly when this is recommended by BFIR It has recommended that similar benefits must be extended to merger proposals designed under SICA Further, it has suggested that the RBI replace its Health Code System (HCS), which reviews incipient sickness over a six month period, by Revised Irregular System (RIS), which is a system of monthly monitoring based on number of cheques bouncing or bills dishonoured To keep a track of creditworthiness of promoters, the Committee has suggested that the financial institutions should create a common information pool about firms that have defaulted, entrusting the work to an independent and reputable credit rating agency, like CRISIL Finally, the Committee has suggested amendment of the existing Companies Act enabling creditors in the case of defaults of more than 180 days to secure a change in management, which can include the entire board of the company, or replacement of the chief executive by a person of their choice Unless these changes are secured within a given time frame, the creditors may be enabled to stop giving any further funds, including working capital, attach properties and assets, or attach equity shares in lieu of default

Other Subjects

The Committee deals with two other important subjects, amendment to Urban Land (Ceiling and

Regulation) Act 1976 (ULCRA) and amendment to Industrial Disputes Act Amendment to ULCRA is necessary to enable sale of surplus land of an unviable firm to generate substantial funds for repaying the whole or a part of the outstanding debts and also for meeting the cost of rationalising the labour force It has suggested that the Central Government should take the lead by asking Union Territories to grant exemption under section 20 and 21 of ULCRA, particularly for BIFR schemes. It should also convene a conference of states, which have accepted and implemented ULCRA, to persuade these states of the need to amend sections 20 and 21 with a view to granting exemption to schemes recommended by BIFR subject to regional master plans It has also suggestd that the government must involve the Housing Development Finance Corporation (HDFC) and other reputable financial institutions in formulating a specific, clearly sequenced, commercially viable plans for urban redevelopment through sale of excess land

Regarding Industrial Disputes Act (IDA), the Committee's ire is against sections 25(N) and 25(O), which seek prior state government approval before retrenching workers or closing down an establishment It has suggested that the government must amend sections 25(N) and 25(O) in a manner that there should be no need for applying to the appropriate government Further, it has said that while in theory, any retrenchment or labour rationalisation recommended by BIFR under a sanctioned scheme overrides provisions of 25(N) and 25(O), this needs to be clearly notified and publicised since Labour Commissioners of many state governments seem to be unaware of it. Further, it has suggested that the government should amend the clause relating to compensation for retrenchment and closure and increase it from 15 days wages to one month's wages per year of completed service.

The Committee has also made a few suggestions to avoid pilfering of assets by the promoter after BIFR's decision and on getting good value for assets. It has suggested that the High Court should appoint a provisional liquidator to take custody of the company's property as soon as BIFR forwards its recommendation to prevent the promotor from stripping the assets of the company and selling of as much of moveable property and inventory as possible. The promotor is able to do so as the period between BIFR's decision and the winding up order by the Court is totally unprotected and unpoliced, outside the pale of SICA and also of the winding up provisions of the Companies Act Further, Section 20(4) of SICA empowers BIFR to sell the assets of a company that is to be wound-up, and transfer the sale proceeds to the concerned High Court for distribution to claimants Further, the Committee has recommended the sale of a company's assets in a dismantled form, and not as a 'going concern', to realise the best value of these assets Lastly, it has suggested that to truly reduce the problem of delays in winding up, there must be five fast track Winding-up Tribunals, situated in Bombay, Calcutta, Madras, Delhi and Bangalore These Tribunals should only examine winding-up cases and, to that extent, expedite the process. The government should investigate the possibility of barring overlapping jurisdiction of civil courts in the affairs of the Winding-up Tribunals and seriously consider introducing summary procedures in winding up cases.

The report, as could be seen, is comprehensive and takes care of every detail. The only criticism is that it is as good as "exit policy", although in a disguised form. The report leaves no one in doubt that efficient winding up of an unviable concern and getting the best value for its assets are its main preoccupation. As the committee has put it barriers to industrial and corporate restructuring serve no economic goal and are anti-labour, for although these restraints seek to protect labour in the short run, these actually harm long and medium term employment by eliminating growth possibilities. In so far as the Committee has recommended a hundred per cent increase in retrenchment compensation and has sought to ensure the best value for a company's assets on winding up, it has kept workers interest also at heart Additionally, the government could take care of the surplus and retrenched workers through schemes formulated under the National Renewal Fund The Committee having presented its report to the Finance Minister, it is for the government to discuss the report with labour leaders and others concerned and, if necessary, to improve upon the report to ensure its smooth implementation This is no doubt a difficult task, but a dialogue is a must to seek the goodwill of the workers, which alone could make a success of industrial and corporate restructuring.

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Gandhi And The Indian Economy Today

Malcolm S. Adiseshiah

GANDHI in his living, thinking, teaching, and in his death is an inexhaustible subject, with no beginning and no end. Out of this, his multifaceted life and personality, I wish to limit myself rather narrowly to only one facet, that is, to Gandhi's views on economic matters, with particular reference to the Indian economy. I am not approaching the subject in terms of what has come to be called Gandhian Economics—a term coined even during his lifetime and in use even till today—for two reasons.

First, Gandhi is larger than economic science He made it clear that he was not an economist in the professional sense He had not read Adam Smith, David Ricardo, the Mills—the father and the son—, and Alfred Marshall He drew his thoughts on economic affairs from three sources. The first was his deep ethical-spiritual convictions, the second was his close involvement with the economic conditions of the people, particularly the rural people who formed over 80 per cent of the people in the country in his day, and the third was his reading and reflection and the results of his putting into action what he read of the Utopian Ruskin's *Unto This Last and* Tolstoy's *The Kingdom of God is within You.* It was these three sources that he reflected and acted on from his South Africa days, resulting in a synthesis of his ethical/spiritual beliefs on Ahimsa and Truth alongside of the massive and baffling economic problems confronting him and the country. For him, real progress was "moral progress" and, to use his somewhat startling words, "true economics stands for social justice and moral values. "His ideal of true economics which was to "manufacture souls" and not material plenitude is also expressed in his own unique langauge. "Let us seek first the Kingdom of God and His righteousness and the irrevocable promise is that everything will be added to us These are the real economics"

But we economists should realise that even as Gandhi thought and expressed himself thus, he was adhering to one of the two streams from which economics has flowed and grown—the ethical on the one hand and the engineering on the other—, as one of the recent economic treatises reminds us. The ethical tradition as pointed out is the ancient Indian way of approaching any human problem, a tradition which includes Kautilya and Valluvar and more recently Vivekananda and Tagore in India, and Mill, Marx, and Marshall outside India. The engineering tradition is more recent and goes back to the French physiocrat, Quesnay, and our own Dadabhai Naoroji, and more recently to Leon Walras and the mathematical economists who have followed him. Gandhi belonged to the ethical tradition and affirmed his belief that economics is related to metaphysics and other human sciences with the resounding words: "I must confess that I do not draw a sharp or any distinction between economics and ethics. Ethics that hurts the moral well-being of an individual or a nation are immoral and therefore sinful. Thus the economics that permit one country to prey upon another are inmoral." Incidentally, I should say that I belong to the ethical tradition, because I am concerned with the ends as much as with the means of living.

I said earlier that I do not use the term "Gandhian economics" and what it implies doctrinally for two reasons. I have just explained the first reason. The second reason is that the laws of economics are not tied to one person or one group or one age. They are universal, or they are not laws. The application of these laws, however, varies with the time and place under consideration. The means of working and living in the first century AD were different from

those that existed in the nineteenth century: the needs for existence are perceived in one way by the people of the cold North and differently by the people of the warm tropics. Again, the conditions of life and work change over time, so that the application of the economic principles, which are universal, takes on different substance and form at different times and ages To speak of Gandhian economics is misleading because it is not economics which is Gandhian, but its application to our time and conditions as declared by Gandhi's perception. This is similar to there being no Indian economics or American economics or Communist economics, but only the general economic principles as applied to India or America or the Communist system. I would, therefore, advise that we avoid using this misleading term and instead concentrate on the economic ideas, the economic teaching resulting in action, and the economic precepts of Gandhi

Five Facets

Just as we limited ourselves to one aspects of Gandhi—his economic precept and practice—so too when it comes to today's Indian economy, we shall limit ourselves to five issues (a) the balance of payments problem, (b) the issue of inflation, (c) the problem of unemployment and underemployment, (d) inequalities in income and asset ownership, and (e) the underground economic and the moral basis at the back of the whole economy It would be my endeavour to look at each of these problems which are massive as they characterise our economy today both quantitatively and qualitatively

Balance of Payments : The balance of payments problem arises out of cumulative excess of our imports over our exports. In the forty five years of our Independence and functioning of our economy, it is only in the two years that there has been an excess of our exports over our imports. This trade deficit which has been built up cumulatively has, in part, been met by our invisible imports—mainly the remittances from our fellow countrymen and women working abroad, particularly in the Gulf countries, the concessional loans made to us by foreign countries and some profits that our companies abroad earned The other part has been met by our international commercial borrowing. Now, in the past two years, these invisibles have declined sizeably and our credit in the international commercial market is near zero, so that we are not able to borrow intensely abroad this means that the only means of paying for our imports and the interest and capital repayments of our foreign debts (which exceed $ 80 billion or Rs 1 lakh crore today) is our exports and our heavy borrowing from the two international financal institutions, the International Monetary Fund (IMF) and the World Bank Take the $6 6 billion of loans subscribed this year by the Aid India Consortium which comprises 12 countries and the World Bank The loans offered by the foreign governments which amount to $3 billion have to be used to buy machinery and raw materials from the lending country As for the other $3 billion subscribed by the World Bank and the $ 5 to 7 billion on long term credit being negotiated by us with the International Monetary Fund, the five conditions under which these loans are being offered and quite clearly and openly explained by the Managing Director of the Fund during his visit to India in August last are (i) government expenditure to be reduced so that the government's deficit is cut from the current 8.7 per cent of GDP (the National Income) to 4 per cent, which involves deep cuts in subsidies which will hurt the poor and reduced defence outlay, (ii) trade reforms to be intensified, removing all non-tariff barriers on imports into the country; (iii) tax reform involving reducing customs duties and raising excise duties which will raise prices and hit the poor and lower middle classes; (iv) industrial policy reform involving introducing an "exit policy" under which all sick public and private companies will be closed which will increase unemployment and transfer all production increasingly to the private corporate companies; and (v) reducing prices of infrastructure while increasing rail and airfares, crude oil prices, coal prices etc. which will further feed inflation and affect the poor. On top, even these large IMF loans give only temporary relief because they have to be repaid within five to ten years (this is called long-term credit) from our export earnings

One means that we have devised for obtaining some relief from our exports not increasing has been to invite direct foreign investment, for which we have given foreign companies the right to invest up to 51 per cent in Indian companies and in some cases even up to 100 per cent The latest government report is that, as a result so far only $ 85 million foreign investment has come in (compared to $ 2 billion in China and $ 1 5 billion in Indonesia) The Foreign Investment Promotion Board just set up by the government as a clearing agency for multinational investment, has not had much business and so has taken the initiative to invite three US giants Coca cola, General Electric and General Motors—to submit concrete proposals to the Board Against this bind that we have got ourselves into in regard to our import-export trade and particularly the problem of paying for our imports which is one manifestation of our consuming more than we are producing, that we are spending more than we are earning Let us turn to Gandhi's ideas on foreign trade as expounded by him in relation to Swadeshi and khadi when he said that "the centre of Swadeshi lay in Khadi" and that Swadeshi is

"that spirit in us which restricts us to the use and service of our immediate surroundings to the exclusion of the more remote " For Gandhi, the spinning-wheel was not only the key to swaraj but, among its nine other objectives, it would check the erosion of our wealth to foreign countries, and he expressed this thought vividly in saying that the spinning-wheel was deployed both for promoting the spirit of Swadeshi and carrying out the boycott of foreign cloth, describing these two uses as the benign and terrible aspects of the spinning-wheel J C Kumarappa carried this doctrine forward and said that the commodities produced within a community should be for domestic consumption and only its surplus should be exported Some communities may have some residue after satisfying their domestic requirements This he calls "natural surplus" which excludes trading abroad in goods needed by the people of the country It is not possible today to go back to the system expounded by Gandhi and elaborated by Kumarappa But the export of vegetables and fruits badly needed by the poor people (vegetarians) of South India to the Gulf countries, the export of rice to those countries, at a time when the majority go to bed every night hungry, the government's decision to set apart a percentage of the production—say 30 per cent in the case of tea—for exports, all these should be examined in the light of what we have learnt from Gandhi For me, the core in his view on external trade is that we—all of us, government, parliament, business houses and people, particularly economists—need to face the basic question as to what is the purpose of our exports. We go on pushing ourselves and our people to export more and more on the plea that we are now part of a "globalised" trading world We need to ask what is the purpose of exports. For me, the answer is that we must export enough (i) to pay the interest and part of the principal on our debts (which today amount to $ 80 billion); and (ii) to pay for absolutely essential imports (particularly those for our infrastructure) which should exclude exports of all consumption goods which should be produced within the country. All that we are doing to reduce unnecessary imports—unnecessary in the sense that they are used to produce non-necessaries and luxury goods—should continue and be intensified but the main question that we must face is what is the purpose of exports. For, the answer to that question indicates that using the above two criteria, our present level of exports is adequate and can even be reduced in terms of the necessities like rice, vegetables, and increasing tea packages

Inflation

Currently we measure the rate of inflation by the wholesale price index, which till three years ago was around five per cent per annum and is now fifteen per cent per annum, and despite whatever the government forecasts, is likely to remain at that level, because the seasonal downswing ended last month, December 1991, and despite a good monsoon this year continuing the good record for the past two years, prices will remain at the high current level For the poor man (and let us not forget that when we talk about the poor man, we are talking about 60-70 per cent of our people), for the man in the street, and for the housewife who does the daily shopping, it is not the exotic wholesale price index which guides his/her daily life and shopping It is the retail prices, where the index shows double of what the wholesale price index shows and so is at 30 per cent As noted, we have had a good monsoon and a bumper harvest for the last two years (which for this year is expected at the same level of 175 million tonnes of foodgrains as that of last year) and the buffer stock of wheat and rice has already passed 20 million tonnes. Despite this, the prices of rice and wheat are rising and are being kept down in the public distribution system (which does not reach the really needy rural poor) through heavy government subsidy which, as noted earlier, the international financial institutions want to see reduced. The price rise on rice and wheat is also a consequence of their export to the Gulf countries, as noted earlier Further, the government has got the Reserve Bank to follow a tight money policy to the point where the medium, small and tiny entrepreneur is not able to keep up his production and is forced to lay off part of his work force. Interest rates have been hiked which makes such borrowing as is permitted very costly for the small farmer and the industrial producer The one area which needs attention and early action is government expenditure, particularly what is called non-development expenditure which includes the salary of the government staff (union, states and local bodies which increased last year by 1100 persons and Rs 3000 crore, the defence outlay where the increase last year was by Rs 3000 crore, subsidies on fertilisers and exports). Turning to Gandhi's ideas on prices, we find that they are related to his doctrine of small-scale and village industries and his approach was formulated as a solgan "to render unto villages what was due to them " In particular, his doctrine of village self-sufficiency brings the process of production and consumption together and reduces the importance of the price mechanism. This village self-sufficiency holds the key to the prosperity of both the soil and the inhabitants living on it. Healthy nourishing food is the Alpha and Omega of the rural economy. The bulk of a peasant's family budget goes to feed himself and his family. All other things come afterwards. Let the tiller of the soil be fed well. Let him have a sufficiency of fresh, pure

(Contd. on page 12)

Annie Besant—Forgotten Heroine Of The Freedom Struggle

K.G. Joglekar

A hundred years ago in 1893, a fiery Irish woman, a loyal subject of the British Crown, came to India. For the next 60 years she visited Europe, America and Australia but always returned to India which she considered her home. During this period she rendered valuable services to India in the fields of education, social reform and politics. When she died in 1933, Mahatma Gandhi had said "So long as India lives, the memory of the magnificent services rendered by Dr Besant will also live. She had endeared herself to India by making it the country of her adoption and dedicating her all to her."

It was a period of great turmoil in India. The nation was trying to find its soul and to free herself from British servitude. Giants strode the political and social scene. Ranade, Pheroze Shah Mehta, Surendra Nath Bannerji, Bipin Chandra Pal, Lala Lajpat Rai, Gopal Krishna Gokhale, Lokmanya Bal Gangadhar Tilak, Aurobindo Ghose, Madan Mohan Malaviya, Motilal Nehru, Chitta Ranjan Das, Mohammad Ali Jinnah, C.P. Ramaswamy Ayar and above all the father figure of Indian nationalism—Dada Bhai Naoroji were all active in the political scene. Gandhiji and Jawaharlal Nehru came later. It was difficult for anyone, particularly a white woman to be acknowledged as a leader in her own right, whose counsel was often sought by prominent leaders, who was asked to move important resolutions at the annual sessions of the Congress and who was asked to lead delegations to England to plead the cause of India. That she dressed like an Indian lady, performed *Pooja*, and ate according to Hindu rules, made things both easy and difficult for her. The women of India, just coming out of their seclusion, were thrilled to see a woman addressing large gatherings of men who listened to her. But the fact that she called herself a Hindu of the ancient and Aryan type, aroused the suspicion of the orthodox elements. For a long time the doubt persisted was she sincere or was she a plant? The British Government was suspicious of a white woman trying to arouse among the Indian people a feeling of self-respect and pride in their cultural heritage. Sir Valentine Chorol in his book 'Indian Unrest' acknowledged Dr Besant's role in spreading the message of Indian nationalism.

Two interesting incidents bring about the extent of the time-scale of her activities. On her first visit to Benares (now Varanasi), she met a four-year-old boy. Sri Prakasa who took a leading part in the freedom struggle, was a member of the Central Legislative Assembly and after India became free was High Commissioner to Pakistan, a Central Minister and later Governor of Assam, Madras and Bombay. On her visit to Allahabad, she initiated thirteen year old Jawaharlal Nehru into Theosophy.

When Dr. Besant landed in India she had decided to work in the fields of education, spiritualism, and social reform and not to take part in politics. She founded the Central Hindu School and College which later became the nucleus of the Benares Hindu University. It was her dream to have a chain of such schools and colleges with an apex University. She translated the Gita into English. 'The Lotus Song' as she called her translation was very popular. She worked for reforms in University education, fought for the rights of women, revival of the Panchayats and equality for the untouchables. She also wanted to do away with middlemen and said the consumer should deal directly with labour without the interference of the contractor.

Dr Besant stuck to her decision to stay away from politics for full two decades. Why did she decide to plunge into politics in 1913? According to her, Rishi Agastya had commanded her 'to form a small band of devoted people who were brave enough to defy wrong social customs like premature marriage.' Not many now or then were prepared to accept this and the famous revolutionary Pandit Shyamji Krishna Verma scoffed at it by saying that 'she was under constant spell of self-hypnotism'. A more rational explanation would be that she, like many others found that education and social reform had little relevance so long as Britain continued to occupy India

Indian politics was at the crossroads in 1913. The British Government was gloating over the split in the Congress, at the annual session in Surat in 1907 The 'extremists' had been thrown out of the Congress and their leaders like Tilak were in jail The 'moderates' who had taken control of the Congress had reduced it to the status of a debating society without any plan of action except supplicating the Government. The British Government on its part contented itself with making vague promises of things to come after the war was over The first essential thing Mrs Besant realised was unity in the ranks of the Indian people. Though she had little sympathy with the 'extremists', she realised that their presence in the Congress was essential

Her efforts failed for a time because of the antipathy of Pheroze Shah Mehta and Gokhale towards the 'extremists' Their death in 1915 left the 'moderates' without a leader and Tilak and his followers returned to the Congress at the annual session held in Lucknow in 1916. Mrs Besant moved the resolution at this session on political reforms in India. She ridiculed those who said that the demand for political reforms in India should not be raised till the war was over. She said. We are only following the example of the self-governing dominions and are only taking the advice of Mr Bonar Law, the late Colonial Secretary, who advised the Dominions to strike the iron while it was red hot ....The iron is red hot, but after the reconstruction of the Empire the iron will be cold and where, I ask, is the blacksmith who allows the red hot iron to cool down before he tries to strike it to the shape and form he wants?

Mrs. Besant moved the argument that being a coloured people, Indians were not fit for self-government and the destiny of the coloured people was to submit to white rule. She observed, "That is not the doctrine that the coloured nation is prepared to accept Has God given liberty alone to the pale faces and not to the coloured people of the globe? It is not colour that counts It is a clever brain and a strong heart and not the colour of the skin that covers them The Lord Buddha, the Lord Mahomed and the Lord Christ were coloured people All the founders of religions were coloured men Have the colourless produced a single founder of religion.?"

She rejected the suggestion that India should wait for the end of the war for raising her demand for self-government in these words "It is only Home Rule that will enable us to defend ourselves. .England is fighting for her life and has called India to help her with as much as India is able to give. Oh! India would have given so much more, so many more men, so many more volunteers in order to help England in the hour of her need but England at her peril calls the Indian soldiers to fight for the liberty of Belgium and the sacredness of the treaties and thousands of these soldiers back here find their people still in bondage and treaties disregarded, torn to pieces and thrown aside. That which England fights for in Europe, she must admit here."

But the war in Europe was now coming to a close and England was confident of winning it. Cooperation of the Indian people was no longer sought. The Government took recourse to repression. Many nationalist leaders were prosecuted and jailed. Mrs Besant was interned and security was demanded from her paper *New India*. Hers was a voice of moderation and for adopting constitutional methods and her incarcination angered the people. She was elected President of the Congress session held in Calcutta in 1917. In her presidential address she made particular mention of the loss of belief in the superiority of the White races, awakening of women to claim their ancient position and awakening of the masses Concluding, she observed "After a history of a millenium, stretching far back out of the ken of mortal eyes, having lived but not died with the mighty civilisations of the past, having seen them rise, flourish and decay, until only their sepulchres remain deep buried in the earth's crust, having fought and triumphed and having survived all changes, unbroken, India, who has virtually been the Crucified among nations, now stands on her resurrection morning—the immortal, the glorious, the ever young, and India shall soon be seen, proud and self-reliant, strong and free, the radiant splendour of Asia and the light of blessing of the world

Her speech reminds one of Jawaharlal Nehru's famous 'Tryst with Destiny' speech delivered on the night of Independence 30 years later But the British Government had now no need and therefore, no reason to heed India's demand for change in her status The Home Rule Leagues started by Mrs Besant and Lokmanya Tilak were proving a headache for the Government as was the disillusionment of the soldiers demobbed

after the conclusion of the war. Repression was let loose to stifle the demand for political reforms. The massacre at Jallianwallah Bagh shocked people everywhere

Mrs. Besant moved the resolution on the Jallianwallah Bagh massacre, the most important resolution passed at the Congress session held in Amritsar in 1919-20. She was scathing in her condemnation of the officers responsible for the massacre. She said, "We indict these officials on their own words spoken with a shamelessness that they did not realise apparently the criminality of what had happened, but spoke it out in public as though nothing had been done...where wrong has been committed against the helpless and defenceless, where force has been used against unresisting and harmless crowds, where the massacre only stopped when the ammunition was exhausted, when in a closed space, from where none could escape, the General Commanding directed the fire on the outlets of the closed space, until they were choked with the bodies of the dead and the dying, then it is not a private wrong to be forgiven, but it is a public wrong to be punished.

But events were soon to overtake her. While Mahatma Gandhi found the Montagu—Chelmsford reforms inadequate and unsatisfactory Mrs Besant felt that they opened the gateway to the freedom of India and advantage should be taken of them. Her amendment to the main political resolution was defeated at the Amritsar session. The writing was there on the wall for everyone to see Indian politics had entered a new era. Mahamta Gandhi captured the Congress at its annual session in 1920 in Nagpur with the slogan of non-cooperation Mrs Besant said non-cooperation and boycot of foreign goods will either fizzle out or lead to a very terrible impasse from which liberation will only come after cruel sufferings"

But the changed mood in the country made leaders like her irrelevant. She stayed away from the Nagpur session and instead attended the Convention of the Liberal Party held in Madras. She spent the last 13 years of her life in comparative seclusion, watching the political scene but taking no active part in politics. Hers was a meteoric rise in Indian politics. Within a few years of her entry she became a leading light of the freedom struggle and rose to be the President of the Congress. But her fall was equally meteoric. Events took their inexhorable course when her ideas had ceased to be relevant for the people. But sixty years after her death one can only marvel at the love she had for the people of India and the courage with which she fought for the emancipation of the Indian people in various spheres.

The author is a noted journalist

(Contd. from page 9)

milk, ghee, and oil, and fish, eggs, and meat if he is a non-vegetarian What could fine clothes, for instance, avail him, if he is ill-nourished and underfed? The question of the supply of drinking water and other things comes next. In such a scheme of self-contained communities, aggregate expenditure would be equal to the aggregate income and there would be no leakages and no question of overpricing or underpricing. The basic core in this view of Gandhi concerning our problem of inflation is that we have to start with the need to limit our demand and marketing to what is necessary for our living Until there is some limitation of wants, there can be no break in the price spiral All the other measures that we have taken, such as decreasing the supply of money, increasing its cost for the large industries, the promotion of small, tiny industry which is dealt in the next section, and the agreement on cutting government expenditure sharply need to be built into our examining our way of life and limiting our wants to what is necessary for our living Without that basic foundation, all other remedies will involve further hardships, particularly on the poor consumer and tiny producer and farmer and will not really arrest inflation and reverse it. □

(To be concluded in next issue)

An Engineering Marvel

Biman Basu

AFTER dominating the Hooghly river skyline as a symbol of Calcutta for almost five decades the famous Howrah Bridge (Rabindra Setu) now has a rival. The second Hooghly bridge, or Vidyasagar Setu as it has been christened, today stands as the new landmark of Calcutta and a majestic symbol of modern India. It is a tribute to the skill and perseverance of a team of young engineers who took up the challenge, and succeeded in the face of several odds Vidyasagar Setu has a rare distinction—it is the longest 'cable-stayed' bridge in Asia. Built at a cost of Rs 388 crore, it has an eight-lane carriage way which will allow 85,000 vehicles to cross the river every day, relieving much of the pressure from the old bridge

The pressing need for a second bridge over the Hooghly connecting Calcutta to Howrah was being felt for quite some time as the old Howrah Bridge, built during the Second World War, was totally inadequate to handle the fast increasing flow of vehicular traffic across the river. When the second bridge was conceived in 1970 it was decided to locate it south of the old bridge, downstream of the Calcutta port area. This necessitated a design that would allow a clear passage for ocean going ships below the main deck. That required a corridor 152m wide and 35m high under the bridge, which therefore had to be a high-level single-span bridge The choice, then, was between a cable-suspension bridge and a cable-stayed bridge The cable-stayed design was finally selected as it was more economical than suspension type upto a span of 500 metres (the new bridge has a main span of 457 2m) Besides, the Calcutta soil was also suitable for this type of a bridge.

Many people think that Vidyasagar Setu is a cable suspension bridge, like the famous Golden Gate bridge of San Francisco, USA. But they are wrong, because although cables are used to support the deck structures in both, the actual geometry and consequently the interplay of forces are totally different in the two

A suspension bridge consists of two cables strung over two towers at the two ends, and the bridge deck is suspended from these cables by vertical 'hangers' The cables are secured at both ends to firm 'anchorages' that take the entire load In a suspension bridge the load pulls the cable anchorages at either ends of the bridge inwards

With a cable-stayed bridge it is different. Here there are no hangers, but the deck is supported by cables connected directly from the deck of the pylons or towers The load of a cable-stayed bridge presses down on the pylons and piers that support them. There is no overall inward or outward pull because the cables pull against the bridge deck itself and the forces balance out.

The contract for the Second Hooghly bridge (as it was originally known) was awarded in 1972 to a consortium of companies of which Braithwaite, Burn and Jessop (BBJ) was a constituent The original design supplied by a British Firm envisaged a cable-stayed bridge with a deck of box sections Unfortunately, even before take off, the project ran into trouble Two bridges of similar design—the Milford Haven bridge in U.K. and Yarra bridge in Australia—collapsed during construction. Naturally there was a lot of hue and cry and doubts were expressed about the safety of the design. However, a detailed analysis of the accidents by a high-power committee ruled out any design flaw, the mishaps were blamed to faulty construction techniques. Nevertheless, the design of the Second Hooghly bridge was drastically changed. Instead of a box-section it was to have a composite deck with two main girders and one middle girder, connected by cross girders, and suspended from four pylons by cables The number of piers were reduced from the original six to four.

The structural safety of the bridge, which is designed to carry upto 85,000 vehicles per day, was ensured by wind tunnel studies of the aerodynamic effects of wind on the

bridge deck and pylons. The tests were conducted using models of the bridge at the Indian Institute of Science, Bangalore, National Physical Laboratory, London and also in Stuttgart, Germany. During these tests no significant oscillations of the deck were observed.

When the work on the bridge was finally taken up in 1985, the challenge before the construction team—a group of young engineers, most of them fresh graduates, with a couple of experienced hands—was real. No one in the group had any experience in building a cable-stayed bridge which was a relatively new concept in bridge building.

On the Calcutta side erection work started in November 1985, with the setting up of the infrastructure facilities. At the Howrah end it started almost a year later. To bring the pylon sections to the site, the builders made extensive use of the riverway using heavy barges. From early 1988 the work gathered momentum but only to face yet another setback. In January 1989, the massive pylon crane used for erection of the pylon on the Howrah side collapsed damaging sections of the already erected portion. Although no life was lost, it put the clock back by at least a year.

After the pylons were ready came the trickiest and most risky part of the job—the erection of the main deck. The most critical factor during this stage was the deflection of the pylons. In a cable-stayed bridge the entire vertical load of the deck is carried by the two pylons. So any imbalance in the load supported by cables on two sides of a pylon can deflect it to dangerous extent jeopardizing its stability. The maximum allowable deflection in this case was not more than 350mm from the vertical. For a 122-m tall pylon that is really a tall order. But the BBJ team managed to keep the deflection within safe limits as the main deck was strung by cables section by section. The engineers estimated the deflection at every stage of construction by computer simulation using their own software, and then checked it at every stage to keep the figure within the design parameters. In fact, the computer was used extensively by the engineers during construction, especially during construction of the central main span which was built up from ends to be joined at the middle

Novel Method

The final joining of the main span at the middle was completed in the early hours of 26th August 1992 The engineers used a novel method to bring the two ends in alignment before joining It was discovered that the Howrah side of the span was slightly higher than the Calcutta side To bring it down to a matching level, two 10-tonne loaded trucks were driven on to the raised section which did the trick.

Hailed as an engineering marvel, Vidyasagar Setu has cables as its mainstay The cables used to suspend the main deck of the bridge are also of special type Unlike the twisted wire cables normally used in cable suspension bridge, the Second Hooghly bridge deck is supported by 152 special parallel-wire cables. Parallel-strand cables have certain advantages over twisted ones in terms of weight saving and corrosion protection. If, for instance, twisted cables were used for this bridge the weight of the cables would have been 2500 tonnes rather than the 1400 tonnes now. Each cable is made up of varying numbers parallel strands of 7-mm high-tensile steel wires enclosed in a high-density polyethylene (HDPE) sheath and grouted with a mixture of polyurethane and polybutadiene. Each cable, with diameter varying from 140mm of 200mm, was custom made to the required size complete with the HDPE sheath and anchoring sockets at both ends by a firm at Ranchi and brought to the site by road The grouting was done at site after straightening out the cables In adition to the 152 main cables that support the main deck, the bridge also has 16 "holding down" cables under piers 1 and 4, the first time such cables have been used anywhere in the world

Unfortunately, even a year after its imagination the full potential of this unique engineering marvel is yet to be realized for want of infrastructure in the form of approach and service roads at the Howrah end Disputes over land acquisition and eviction of squatters are still said to be holding up work The result is that hardly a few hundred vehicles use the bridge daily. This not only means loss of revenue by way of toll tax collections but also continued hardship for thousands who have to commute across the river daily. Only when the bridge becomes fully functional will the long cherished dream of Calcuttans to have a second bridge across Hooghly have come true. ☐

The author is Editor, Science Reporter.

Rural Housing Schemes
Some Observations

Rajiv Sharma

HOUSING has been primarily identified as selfhelp activity but in the changing scenario with high land and construction cost necessitated State intervention initially as a welfare activity and now as a social and economic imperative. Another reason for taking housing as a priority sector is to provide service to the housing stock which is deteriorating at an alarming rate.

Almost one-fourth of India's population live in rural areas. However, housing backlog in this sector is estimated to be 20.6 million. In rural areas, housing stock grew from 65.2 million in 1961 to 74.5 million in 1971 and 88 7 million in 1981. The earlier projections of National Buildings Organisation (NBO) put the 1991 housing stock of rural area at 106.2 million.

Social housing programmes in urban areas and rural housing programme for landless labourers and artisans under the Minimum Needs Programme (MNP) formed the thrust of the Seventh Plan. Simultaneously, institutional finance for housing and promotion of building material technology were also given priority in the same plan However the plan outlay, including Indira Awas Yojana, worked out to be only 1.3 per cent and even within the social service sector, housing accounted for 1.63 per cent of the plan outlay.

Some of the rural housing schemes are discussed below:

a) Minimum Needs Programme

Initiated in 1971, the scheme included allotment of house sites and construction assistance to rural landless workers and artisans including SC/STs. The scheme was earlier part of central sector scheme and was later transferred to the state sector in 1974. As many as 4.32 million housing sites, as against the target of 2.9 million were allotted and construction assistance provided to 2.25 million families. During 1990-91 and 1991-92 the outlay provided was Rs. 129.65 crore and Rs. 128.91 crore respectively.

b) Indira Awas Yojana

The Ministry of Rural Development is operating this fully subsidised rural housing scheme as a part of rural employment programme for providing houses to the SC/STs and freed bonded labour. It now forms a part of Jawahar Rozgar Yojana (JRY). The objective of this scheme is to develop a viable micro-habitat, provide housing and ensure a base for higher level of earning for the beneficiaries. A sum of Rs. 12,700 per unit for plain areas and Rs. 14,500 per unit for difficult hill areas is given as grant under this scheme to the State Governments for housing, sanitation and infrastructure. During the Seventh Plan, 6.87 lakh dwelling units were constructed at an estimated expenditure of Rs. 699.58 crore and for the year 1990-91 the target achieved was 1.71 lakh, at an anticipated expenditure of Rs. 187.96 crore.

c) Other Schemes

i) One Lakh Housing Scheme: (OLHS)

One of the most important efforts in serving the rural poor has been the "One Lakh Housing Scheme (OLHS)" which was implemented during 1972-76. This scheme was essentially to support the Central scheme of provision of house sites to landless workers in rural areas launched in 1972. Developed house plots were to be given free to eligible beneficiaries through grants from the Central government. However, additionally, the state government "decided to give a house practically free of cost". Each family had to pay only Rs 100 towards a house built at a cost of between Rs. 1,250-1500. The main effort by the state government was to turn this opportunity into a popular mass movement to boost the Central scheme. Besides the governmental grants, efforts were made to mobilise resources from public at large through donations also. Out of this massive effort, about 60,000 houses were completed over a period of about 5 years, averaging about 12,000 units per annum.

ii) Subsidised Aided Self-Help Housing Scheme:

This scheme was based on the feedback of a few schemes implemented earlier by reputed voluntary agencies. These reults led to the introduction of a totally new and path-breaking scheme popularly referred to as SASH, towards the end of 1983. The innovative features of SASH include:

— Rather than a standard type design followed in OLHS, "Seventeen designs of various plinth areas were selected based on minimum cost, maximum efficiancy and use of improved

building materials and better construction techniques", though a material level competition, exhibition and seminar on low cost housing.
- Programme for masons and semi-skilled labourers to be trained in new construction techniques and cost-saving
- Unlike OLHS, the share of subsidy in a total cost of Rs. 6,000 was reduced to one-third with one-sixth being the contribution of the beneficiary and a half as loan from HUDCO.
- Most important innovation was the use of over 1200 voluntary agencies in the process of beneficiary selection, resource mobilization, loan disbursements and supervision of house construction This helped to inculcate user participation in the entire process, which would help to eliminate a sense of alienation common in a government given house.
- Starting of Nirmithi Kendras to both manufacture low cost building materials and disseminate information and run training programmes to support SASH

At institutional level Housing and Urban Development Corporation (HUDCO) has been financing several rural housing schemes by earmarking 15 per cent of its resource allocation to such schemes. Till June 30, 1991, 2.15 million houses entailing a project cost of Rs. 1247.80 crore was sanctioned under such schemes The loan releases worked out to Rs. 503.17 crore. About 1.6 million units were completed which accounted for 46 per cent of the total units funded by HUDCO. In addition, HUDCO is also financing other shelter options like village Abadi Improvement and Building Materials.

Major Issues

The above mentioned housing schemes are among a series-one after another-implemented by the public sector and then given up. It is important to note here that it was in the SASH scheme that Kerala government has really made an effort to bridge the gap between community and bureaucracy. This scheme incorporated the concept of 'learning by doing' into their planning process. Thus the partnership between community-voluntary agencies-government becomes a prerequisite in all these schemes. Hence, any housing scheme should have the following *components:*

- The need to evolve different type of designs to suit local conditions.
- The need to involve the beneficiaries in the entire process of house provision to reap the benefits of self supervision and developing a sense of identification and pride in the house rather than an alienation.
- The need to gear up the construction sector "to cope with the increased demand due to augmentation of construction activities and also adoption of new construction techniques and improved building materials.

Two issues that clearly emerge from this discussion are, first, involving *community/voluntary* agencies in similar schemes and second, dissemination of appropriate technology.

The housing policy in India has undergone some major changes in the last four decades. Some of them have been a shift from slum removal and relocation programmes to slum improvement approach and a complete change envisaged in the outlook of public sector housing agencies from direct construction and provision of housing to a more supportive and facilitator's role. This certainly means a dynamic role of beneficiaries and non-government agencies since rural housing scheme (RHS) aims at social welfare rather than profit making. Voluntary agencies can ensure improved service delivery as they have "necessary flexibility, openness, faith, commitment, and motivational capacity to go through the rather time consuming participatory housing process patiently and efficiently to the happiness and satisfaction of poor people".

Voluntary agencies can play a supportive role in RHS and so the partnership between government and voluntary agencies should be carefully designed. The basic issue is to identify suitable methods for channelizing the energies of the two sectors, government and voluntary, in a combined manner. The possible areas of their involvement could be:

- Identifying and supporting the real needy
- Participation in appropriate technology design, procurement of building materials, training of masons.
- Involvement of beneficiaries in the programme through self-help construction and supervision.
- Mobilisation of local resources especially beneficiaries contributions.
- Cost recovery in case of loans etc

Experience has clearly marked out voluntary agencies. These can go much beyond awareness creation or to organise people to help themselves It is also recognised that many of the innovative and important ideas in different development fields in post Independent India has emerged from the voluntary agencies.

As mentioned in table 1, private investment in housing sector is much higher than public. Hence, voluntary agencies may prove to be a reliable mechanism to tap this resource. Their popularity could be easily built once they advocate public interest and their organisational structure gives them sufficient freedom to do so.

Building Centres

Efforts to effect savings in

Table 1

Public and Private Investment in Housing

Plan Period	Investment in Housing			%age of Housing Inv. to total Inv. in economy
	Public	Private	Total	
1	2	3	4	5
1st	250	900	1150	34
2nd	300	1000	1300	19
3rd	425	1125	1550	15
4th	625	2175	2800	12
5th	796	3640	4436	9 3
6th	1491	18000	19491	12 5
7th	2458	29000	31458	9

Source: Prominent facts of Housing in India NBO & UN Regional Housing Centre for ESCAP, 1990.

Table 2

Upgradation Targets for Rural and Urban Panchayat Areas: Gujarat

		Annual targets during 1990-2000	Total for 1990-95
1	Houses with roof materials as grass, leaves, reeds, thatch etc and durable wall materials	25,023	125,115
2	Houses with roof materials as grass leaves, reeds, thatch etc and wall material as grass leaves reeds or Bamboo	33,597	167,985
3	Toilets in Urban Panchayats	22,931	114,655
4	Home extensions based on the family family size and house size	53,483	267,415

Source Mehta Dinesh and Mehta Meera (1990), "Housing Strategies for the Eighth Plan: A Perspective for Gujarat State", Report for Panchayat and Rural Housing Department, Gujarat.

construction cost through promotion of low cost and innovative building materials and technology are important as building materials account for a major part of cost of construction. Thus there is a need to tie up RHS with building centres so as to promote low cost housing and locally available material/appropriate material and technology. Similarly, buildings centres could also act as a platform of skill upgradation and dissemination of appropriate technology through training of masons. The role of building centres may be:

i) Setting up building material and technology promotion exposion to provide appropriate platform for technology transfer and application in the shelter sector;
ii) Promotion of commercial production of innovative building materials with local resources and wastes;
iii) Developing appropriate housing design to suit different geo-physical conditions and population needs of different categories.
iv) Increasing involvement of voluntary agencies in supplementing government's effort in this sector.

Building centres may therefore act as a chain to disseminate not only relevant technology but also bring confidence among the residents since they promote use of local materials. The need and credibility of building centres is evident from the fact that in all 213 building centres have been established in the country of which 77 are fully operational. However, very few of them are working in rural areas.

Rural needs are different from urban in the sense that people in rural areas need large space for storage of grains, straw, fodder besides working space for other commercial activities like beedi making, carpet weaving, pottery, coir weaving etc. Thus housing design will vary not only from one part of the country to another but also from one target group to another. It is therefore important the building centres should give a choice of housing design to population concerned.

Other Issues

i) Provision of Services Sites

Provision of house sites to the landless rural labour and artisans has been continuing since 1972-73. However, the scheme is not very successful mainly because, first, many of these sites are far away from the village core and second, they were also devoid of provision of basic amenities like water supply and sanitation. Certain norms should be developed as thumb rule for development of clusters.

One such approach is tried by the HUDCO which envisaged village improvement in *Village Abadi Improvement scheme*. This programme is a package dealing with not only improving rural housing problem but the supporting infrastructure as well.

(Contd. on page 21)

Women And Forest Management

Rohini Vijh

HARYANA has witnessed rapid deforestation during the past few decades. The recorded forest area in Haryana is 1685 sq. km. which is 3.3% of the total geographical area of the State The resulting scarcity of forest products due to the increased human and bovine population has not only caused inconvenience and hardship for the women, but also social, economic and cultural disruptions. The government is trying to take control over the situation by undertaking various social forestry activities in a big way under the various agro-climatic zones vis-a-vis the Shiwalik hills, Indo-Gangetic plains, Sandy plains, and Aravallis But it has been seen that this has not really helped to increase the area under the forest cover in Haryana.

In Haryana, the Shiwaliks covering approximately 68,000 hectares of land spreads along the Northern border of the State. Many communities have settled at the base of the Shiwaliks hills. In the past villagers largely depended upon rainfed agriculture and livestock for their subsistence. Due to increase in the human and bovine population, the pressure has increased on the village and demarcated forests. This has led to degradation of large tracts of land, erosion of the watershed, with corresponding sedimentation of the lakes, reservoirs and irrigation facilities.

Special efforts are required to find solution to the problems faced by the rural people especially women due to the degradation of this vast forest resource on which they are highly dependent. It is very essential to pool in the resources from various agencies working in the rural sector and having an integrated approach by all the government departments implementing various developmental programmes in these villages, which would be helpful in not only finding an effective and long standing solution to the hardships faced by them in their day to day lives but also in making some headway in the uplift of the rural women. This objective has been met to some extent in the state of Haryana as a result of the *Joint Forest Management Programme* being implemented by the Haryana Forest Department (HFD), but still a lot needs to be done in this direction, so as to find means to reduce the dependence of the rural women on forest products which are their only means of subsistence and which can be done to some extent by providing alternatives from sectors other than forestry.

Under the Joint Forest Management Programme, 38 Hill Resource Management Societies (HRMS) have been formed till date in six ranges—Pinjore, Morni, Raipur Rani, Naraingarh in Morni-Pinjore Forest Division, Kalesar and Chhachharauli in Ambala Forest Division. It has been seen that in the beginning it was not difficult for the various villagers to be induced into undertaking active protection of the forests but what is essential is to sustain these initiatives over time and their evolution into an alternative forest management regime.

This paper emphasizes the role of women as active users and managers of forest and the resources and how they have been affected by the various issues coming up because of Joint Forest Management Programme being implemented in their villages.

Environment Policy

It is important to have a policy on environment both at the State and Central level, which is conducive in involving village communities as *partners in the management* and protection of forests. In a group meeting held in some of the villages, it was requested by the men and women in the village that as they had significantly contributed towards the protection of the forests, they should be given their due share of timber especially Khair (*Acacia catechu*) being produced from the forest area and jointly managed by the people and the Forest Department (FD) The people before implementation of the JFMP were meeting their bonafide requirements of small timber and fuelwood from the forests and no special rights or legal right have been given to villagers over the forests being protected by them. This produces an uncertainity about the future as well as doubts about the government's intentions in the minds of the villagers. In the case of the *bhabbar* and fodder grasses, the lease price is worked out by finding an

average of the lease amount obtained from the area in the previous three years not taking into consideration the actual yield from the area. Sometimes due to certain unforseeable circumstances, the yield goes down and the lease price is found to be quite high comparatively and the HRMS is not able to take the area on lease. The new rules pending approval by the Government of Haryana stipulate the finding of a Baseline Yield equal to the yield of the area prior to this coming under JFMP. Any increase in yield over the Baseline Yield is to be shared between the people and the HFD in a ratio of 3.1. However, for a yield equal to or less than this Baseline Yield, the HRMS would be required to pay royalty on a per quintal basis. The new rules also do have a provision for sharing of forest produce from the areas being jointly managed by the people and the Forest Department

Legal Problems

The forests surrounding the villages have been divided into the demcarcated protected (DP) forests and the reserved forest areas The villagers have the right to remove small timber, fodder grass and *bhabbar* grass but all such rights are not applicable in the reserved forests In some areas in the Shiwaliks it has been seen that a particular DP area is being shared by 2-3 villages and in such cases it gets very difficult for the villagers in one village to keep control over grazing, removal of timber etc by the other villages This problem can be seen in one DP area being shared by the four villages of Jattanmajri, Khera, Basola and Prempura. The village women of Khera and Basola were facing a lot of difficulties in getting fodder grass and small timber as according to them the whole area has been heavily grazed by the villagers of Prempura. Not only that, one man from Prempura has leased the DP area for fodder grass taken from the Forest Department, and he was allowing only the villagers of Prempura to cut fodder grass at concessional rates while other villages were facing extreme fodder grass problem and have to resort to buying grass from the market etc. Hence it can be seen that one village is encroaching upon the rights of the other villages. One way of resolving such a problem can be by allocating different parts of the DP area to different villages but this aspect has to be still looked into.

Inter-village Conflicts

The protection of a particular forest area by more than one community will result in each community or village trying to establish its control over the forest and trying to exclude the others from using it. This situation is being faced by the four villages of Jattanmajri, Khera, Basola and Prempura or as another case of conflict between Masoompur and Raina for the same forest area.

But it is the village women who are most affected by such situation as in a household they are the ones who have to provide for the fuelwood and fodder etc and in most cases they have to travel longer distances into the forest to fulfill their requirements of fodder and fuelwood or revert to external sources to fulfil their requirements.

Most of the villages in the Shiwalik do not have homogenous communities but have glaring class and caste differences As a part of JFM Programme various sections of the society and interest groups tend to come together so that a situation of 'gain' arises for all involved, even if the relative gains might not be the same Under the JFMP, the FD provides various incentives to the people in the form of water from the dam as irrigation to the agricultural fields for increase in agricultural productivity and fodder grass resulting in an overall improvement in the economic status of the people. Women in the village are most affected by such a situation as they are the ones who work in the fields as well as provide for fodder grass for the cattle. Irrigation facilities to the field has initiated fodder grass and berseem to be grown in the agricultural fields itself and the villagers have reverted to stall feeding. Not only this, there is an increase in the cow dung productivity which can be used as fuel, making it an easier situation for the women as they have to collect less fuelwood from the fields as well as the forests. But such a 'happy' situation is not for all the women; the women from Scheduled Castes are the worst sufferers as they do not have any land holding as a result of which no fodder grass is available to the livestock Hence, the economically backward in the village feel that they are not able to benefit by the water from the dam Such a situation has been resolved in some villages like Sukhomajri where the villagers, having no land are able to sell their rights of the use of water to other villagers, while in other villages a situation of supressed resentment or clash of interest is slowly arising which needs to be mollified

Productivity

The productivity of the Haryana Shiwaliks since the implementation of JPFM Programme has been steadily improving First of all, due to the provision of water in the agricultural fields, production has improved and there has been a four fold increase in the yield of various crops like wheat and maize There has been an encouragement to the animal graziers to shift from open grazing of goats and cows to stall feeding buffaloes etc. Most of the families in the villages of Nada, Lohgarh, Dhamala, Sukhomajri etc. have sold their goats and have brought cattle and water buffaloes, better suited to stall feed Women have been most affected by such a situation as women usually work in

the agricultural fields. Most of the fuelwood and fodder requirement can be fulfilled from the fields itself as a result of which they do not have to go to the forests for long distances to collect fuelwood and fodder. Grazing of animals was also done by the women and children but due to the advent of stall feeding, the whole process of livestock rearing has been made much easier, especially the collection of cowdung used as fuel.

The closure of the watershed in most of the areas had resulted in the rapid regeneration of indigenous fodder and *bhabbar* grasses. The HRMS requested the FD to give the lease of the adjoining forest area to them than the middlemen, who had sub-contracted to the villagers in the past. Providing leases directly to the local societies was a significant step in transferring some formal management of neighbouring government forest lands to the villagers. The combination of lowered lease price, through elimination of the middlemen plus increased grass productivity resulted in an increased income generation to each family in the village.

Women of the *banjara* community have the traditional occupation of rope making. It is generally the men who go into the forest to cut *bhabbar* grass while the women have the responsibility of first cutting the grass, beating it on the ground and then drying it. It is then finally woven into ropes either manually or by machines and sold in the nearby markets at Panchkula, Manimajra or Chandigarh. Due to the increased productivity of *bhabbar*, the women have benefited as they now have a means of occupation throughout the year (they are the main bread earners of the family) and also *bhabbar* is now available to them at lower rates because of the lease being directly given to the society in their village

The same is the case for the women of the *Bhanjada* community of Kalka, Badgodam and Bowana who are mainly involved in bamboo basket making. Before the advent of JFMP, the women used to find it very difficult to get raw material (bamboo) to keep them occupied even for six months of the year. Under the programme, the villagers were involved in protecting the forest area, as a result of which bamboo produced from the area increased and at present each household in the *Bhanjada* community got 100 bamboos per month for 9 months (September-May) at very nominal rates. This helped the women to be occupied for at least 10 months in a year. Women were mainly involved in basket making while men were only involved in the marketing of the finished produce (baskets) in the nearby market of Kalka.

Equity

A primary assumption of the HRMS strategy was that the resource systems need to be designed so that all community members would benefit equally In case of water from the dam, the distribution mechanisms should be designed in such a way, that it allows even the landless families to benefit from the new resource as in the case of Sukhomajri where the landless sell their user rights of water to the landlords In Dhamala village the rate for fodder grass is fixed at Rs 150 but for the landless who are not able to use the water from the dam, the rate is fixed at Rs. 100 Hence in villages where the HRMS holds the fodder grass leases the villagers are making transitions from grazing to stall feeding

As women in the village carry out most of the dairying and fodder collection tasks and due to the advent of stall feeding, their labour inputs into livestock have increased since this programme was initiated. Hence more attention needs to be given to assist women to gain leadership positions in the HRMS, especially where women are the primary users of grass and forest lands.

Sustainability

In most of the societies formed till date, there are at least 2 women members in the Management Committee. In order to improve their situation further it is essential that the influential and other members in the Management Committee allow concessions in favour of the women or other disadvantaged groups in the village interest. This could also be done by forming small sub-groups under the main HRMS umbrella so that they could operationalise the equity sharing of resource which they are utilising or dependent on.

A number of institutional, legal, economic and technical issues will largely determine the sustainability of the emerging Joint Forest Management Systems in the Shiwaliks. The water harvesting structure built should be maintained preventing sedimentation in the reservoirs Otherwise the societies dependent on irrigation would suffer heavy losses The water entering these reservoirs has also dwindled due to reduced run-off from the catchment due to planting on them Better exploitation of the increased water available in the ground water can be done through tubewells to maintain agricultural productivity over the years.

The societies should also formulate proper management systems of the fodder and *bhabbar* grass leases. In some cases societies are controlled by a few influential individuals who raise the lease payment and take the profits and such cases when benefits are not equitably shared.

Women seem most affected in situations in which the societies fail to reach a consensus regarding the operation or distribution of various incentives like fodder grass. In such cases the women have to either buy fodder at very high rates from the

contractor or purchase it from some external source or market. The women of the *Banjara* community totally dependent on *bhabbar* grass for their subsistence have to pay a high price when the societies are unable to evolve proper management systems. They will buy *bhabbar* in high rates reaching Rs. 700-800 per quintal from the contractor and convert them into ropes for selling in the market. Some of them were of the opinion that the forest department or other external agencies should intervene to identify viable social units for management responsibilities and assist them to develop leadership and management capacities. The HRMS should also respond to their own need by developing a federation which could assist with training, auditing, marketing and legal support. These could be instrumental in reshaping the HRMS programme and enhancing its sustainability.

The challenges faced by women are many and to fulfil their needs of *bhabbar*, fodder grasses and bamboo etc., it is time that the women take active part in the management committee of the societies so that they are able to evolve proper management systems to maintain productivity of the protected forest areas on a sustainable basis. The Government, the Forest Department, NGO's and other individuals should join hands with the women and others suppressed people to sustain their initiatives. □

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One thing that is clear in the above discussion is that rural housing schemes cannot be implemented in isolation. What is important is that such schemes should be affordable and sustainable. Thus planning of rural housing schemes should carefully integrate rural, social and cultural fabric. Location can sometimes play a very crucial role and therefore may lead to success or failure.

A scheme cannot be said to be successful unless it is sustainable and has sufficient cases of replication. In order to obtain this it is necessary to bring these schemes within affordable limits of the beneficiary. Poor loan recovery is an indicator of degree of unpopularity of such schemes. Therefore, it should be mandatory for the beneficiary to bear a part of the capital cost as well as depreciation cost. This calls for linking RHS with employment generating schemes as envisaged in the Eighth Five Year Plan This will also have an impact on rural urban migration as rural employment generation will support local population. Consequntly vacancy rate of rural housing will also go down which in turn will solve housing problem in urban areas

Housing restoration and upgradation forms an integral part of any housing programme Revitalisation of old houses not only saves scarce financial resources but also provides housing in a comparatively shorter span of time and in user-friendly location

Taking into account Government's policy to promote decentralisation of activities and strengthening Gram Panchayats, rural housing demand is likely to go up in near future. With mammoth target on the one hand and limited resources on the other, it is imperative to promote and propagate low cost and user-friendly, appropriate technologies. This in other words means involving community from planning through implementation stages. The near future will therefore assign dynamic roles to building centres and other voluntary agencies. Similarly, the development of the rural habitat linked with village based employment/economic support progrmames is also necessary which enhance the family income base. This will infact mean a rational approach in terms of integrated development and provision of support infrastructure. Successful implementation of RHP could also alleviate the serious problems in urban areas. □

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Role Of NALCO In Orissa's Industrialisation

Dr. Kishor C. Samal

THERE has been competition among the State Governments and within the State among the different regions for the location of central public sector undertakings. This competition is due to implicit assumption that the coming up of a modern large-scale industry in their region would have beneficial linkage effects on their economy. In some cases, the availability of the major raw materials/ inputs make the demand of the State stronger for establishment of a public sector unit.

The National Aluminium Company Limited (NALCO) was registered on 7th January 1981, with technical collaboration and financing of France. The total capital cost of Rs. 2408 crore has been financed by Rs. 1119 crore equivalent of Euro-dollar loan raised through a consortium of international banks and Rs 1289 crore coming in from the Government of India Plan Funds which of course included Rs. 156 crore equivalent French credit on plants and equipment purchased in France. NALCO is the fifth Aluminium Company in India and second in public sector. It is one of the largest integrated aluminium projects of the world. The integrated complex of NALCO has five main segments. (i) Bauxite mine at Panchpatmali, (ii) Alumina Refinery at Damanjodi, (iii) Aluminium plant at Anugul, (iv) Captive Power Plant of 600 MW at Anugul, and (v) Port facilities at Visakhapatnam.

Aluminium production of NALCO in Anugul has increased from 25.4 thousand tonnes in 1987-88 to 192.02 thousand tonnes in 1991-92, power generation of captive power plant from 174 million unit in 1986-87 to 3531 million units. The sales turnover of NALCO in general increased from Rs. 88.76 crore to Rs 969.69 crore, and foreign exchange earning by exporting both alumina and aluminium from Rs. 15.99 crore to Rs. 385.90 crore during 1987-88 to 1991-92. Despite the good performance in production and marketing NALCO's profitability is bogged down due to devaluation and partial convertibility of rupee However, now due to full convertibility of rupee, there may be improvement in the profitability of NALCO.

NALCO has bagged capexil export award for 5 consecutive period. It has drawn an ambitions expansion cum diversification programme involving an investment of over Rs. 3,500 crore for (i) production of aluminium based product like extrusion, (ii) power generation, (iii) a hundred per cent Export oriented unit, (iv) an alumina plant and (v) a cement plant. NALCO is also listed among 31 select public sector undertaking for disinvestment of Government shareholding. Already equity holding worth about 35 crore has been sold to financial institutions and mutual fund in the 1st phase during January-February 1992.

Aluminium metal produced by NALCO can be used as input by different sector, such as (i) Electrical, (ii) Transport, (iii) Building and construction, (iv) Machinery equipment and others (v) Packaging (vi) Household and other miscellaneous. It is to be noted that around half of the aluminium metal in India goes to electrical sector followed by household and miscellaneous sectors. However, while consumption of aluminium is coming down in electrical and household sectors, it is gradually increasing in transport and building & construction sectors in India. A few aluminium-based units have also come up in Orissa recently

Besides major inputs like alumina and power, around 76 ancillary, spare and consumable items are required by NALCO itself Moreover, around 12 additional items from foundry to coal-tar pitch are necessary for Smelter and Power Division of NALCO (Anugul). The Development of ancillary units in Orissa had been steady But NALCO, till now, has not given ancillary status to any unit However, NALCO has already constituted Plant level Advisory Committee and other committees to review and implement their purchase policies and overall development of ancillaries and SSI units. After the commissioning of the plant, NALCO has registered about 69 SSI units within Orissa who are participating in NALCO's purchase programme About 44 SSI units have been considered for recognition of ancillaries. But the total purchase of NALCO for SSI was around Rs 13.32 crore during 1990-91. The main obstacle in the way of ancillarisation

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The Sanitation Situation A Case Study

Sabir Ali

IT is a well known fact that the absence of proper facilities for the disposal of human excreta leads to a variety of problems. Clean, healthy, cheap and socially unihibiting means of human excreta disposal is a primary requisite for the development of the family and society on the one hand and cities and nations on the other.

Statistics reveal that only 6 3% of the total population of India had access to safe means of human excreta disposal in 1981. The coverage improved by just one per cent from 6 3% to 7.3% in 1985. More than 90% of Indians still cannot perform their daily ablutions in a safe, healthy, hygienic and aesthetic environment The situation is grave indeed.

In the above context, the Central Government has launched various programmes over last several years. Liberation and rehabilitation of scavengers through conversion of dry latrines into pour-flush waterseal latrines is one of them.

Under the provisions of this programme a massive conversion of dry latrines into pour-flush waterseal latrines has taken place in the country. The implementation of this scheme has been taken up in about 490 towns in various States. Out of these around 40 towns have been made scavenging free and about fifteen thousand scavengers have been liberated so far. In this paper, an attempt has been made to.

i) understand and appreciate the sanitation situation in the two towns of Madhya Pradesh,
ii) evaluate the maintenance and performance of the system (P.F. latrine) provided under the scheme to the needy households, and
iii) suggest measures for the sanitation improvement

To achieve the above objectives. two towns, namely Satna and Khandwa were selected from the Central North and Central South of the State of M P. for specific observations. 100 beneficiary households were interviewed to know their reactions and experiences and suggestions were sought from the knowledgeable users.

In Madhya Pradesh, various agencies like UNDP/World Bank, Ministry of Urban Development, Ministry of Welfare, Housing and Urban Development Corporation (HUDCO) and State Government are implementing low cost sanitation projects since last one decade.

Under this project Rs. 2.03 crore were utilized on construction of about 16.4 thousand PF latrines and Rs. 3.4 lakh on construction of one community latrine. These constructions were done by contractors and the NGOs in six cities with the funding of the World Bank.

The Ministry of Urban Development had allotted Rs. 61.41 lakh to local authorities of 13 towns in M.P. for implementing LCS under IDSMT (Integrated Development of Small and Medium Towns) Programmes.

The Ministry of Welfare also released substantial funds. The Housing and Urban Development Corporation (HUDCO) has given loan of Rs. 6,454 crore to meet its share under the Basic Sanitation Scheme (Non-integrated). As a whole about 1 64 lakh dry latrines have been converted in the State upto 1991

According to 1991 census, the population of Satna was 1.60 lakh and of Khandwa 1.45 lakh The share of SC/ST population is 17.6 and 13.4 per cent respectively. Out of 82 wards in both the towns only 15 have about 20 per cent scavenger households. Remaining wards are predominantly upper caste Hindus.

In Khandwa, most of the families were using dry latrines for defecation. There were only five families in the sample which were practising open field defecation. The situation in town Satna, however, was found to be entirely different. Here the common practice was open field defecation Only seven families surveyed in this town were using dry latrines for defecation purpose prior to the construction of pour-flush water seal latrines

A brief survey of the characteristics of the beneficiaries brings about two basic features of the population in the two towns The first feature is that in general, upper caste Hindus and Muslims had opted for the pour-flush water seal type latrines. The low caste Hindu did not appear to have opted for these latrines. This pattern reveals the difference in the life styles of the two groups of community. The second feature that comes out of the

analysis of the basic characteristics of the respondents surveyed is that dry latrines were not common in town Satna.

The survey revealed a widespread use of the PF latrines. Out of the 100 beneficiaries surveyed, slightly more than three fourth replied that they were using the latrine. Proportion of beneficiaries using PF latrines was, however, much higher in town Khandwa than in town Satna

During the visit to these towns, an attempt was also made to assess the condition of the latrines constructed under the scheme. In general, the latrines were not in good condition.

Interestingly, in more than half of the sample families where latrines were in use, children did not use these latrines Rather they opted for open field defecation The reason for this practice was that the seats of these latrines were uncomfortable for children. Either they were too big for children or children developed a fear psychoses against these seats By contrast, beneficiaries found open field defecation much easier.

The problems of maintenance of PF latrines was also revealed when respondents were specifically asked who used to clean these latrines. Majority of the respondents responded that these latrines were cleaned by members of the family themselves Keeping in view the fact that neither the beneficiaries nor their family members were provided either with any information or any back-up about the maintenance of the latrines, it is clear that cleaning by the family members specially when the latrines get choked was not upto the mark. A simple support to this conjecture is provided by the information on methods adopted for cleaning the latrines at the time of the survey

Observations

The following observations have emerged from the study:

As far as the maintenance of the two pit waterseal pour flush latrines is concerned, the situation does not appear to be satisfactory. The reasons for unsatisfactory maintenance are (a) scarcity of water, (b) low level of literacy, (c) lack of awareness and knowledge of the working of the PF latrine, (d) poor quality of construction, (e) sticking of excreta to the pan, (f) choking of outlets, (g) choking of Y-junction, (h) difficulty in emptying the pits, and (i) collapse of brick drains.

- Nearly one-third of the sample households in the case study towns are not using the PF.
- In cases where problems do occur, these are generally on account of improper slope of the connection drains and absence of a superstructure.
- Unhygienic methods of excreta disposal like bucket latrine and open to sky latrines are in existence in selected towns.
- Another major problem which leads to poor hygienic condition has been the absence of a superstructure on account of which rain water finds way into the leach pits through the squatting pan and leads to over flow of sewage.
- The local agencies have a major role to play in maintaining the latrines and emptying the filled up pits It was found that local agencies do not extend the required assistance to the people on account of shortage of personnel and equipment etc

Suggestions

The author is of the opinion that till the time construction of new dry latrines and cleaning of old dry latrines is stopped in the country, the problem of scavenging is likely to continue. To solve this problem on permanent basis, the following steps may be taken·

The Government should impose following legal measures for the use of PF latrines (LCS programme) in low cost housing colonies, slums and other such localities.

a) No new building/house should be allowed to be constructed without PF latrine.
b) Where sewers are available, the dry or bucket latrines after conversion should be compulsorily connected to them and this be legally enforced.
c) In the unsewered areas, leach pits should be provided for converting latrines into water-flush latrines.
d) A ban on new construction of dry or bucket latrines be placed.
e) Ban on scavenging be enforced with a withdrawal of municipal facilities such as water supply etc within a limited time frame in case of infringement of ban
f) Government should provide sufficient powers to local authorities under the existing rules and bye-laws to expedite implementation of LCS programme and to prevent construction of dry latrines

- For the beneficiaries, who are very poor or below the poverty line, the PF latrine should be provided free.
- Appropriate monitoring and feed back system should be set up at district and state level to identify the problems and hurdles hampering the progress and to solve them quickly
- For a speedy and successful implementation of the Scheme, necessary inputs should be provided to the implementing agencies like trained officials and funds etc
- Separate budget provision for low cost sanitation programme should be provided and it should be included in the Minimum Needs Programme so that provision made for LCS could not be diverted or reduced.
- There is a need for an accurate survey to assess the dimension of scavenging in each town.

— Extensive awareness and training programmes are a must so that the users become fully aware of the functioning of the PF latrines and are able to use them properly and maintain the latrines in a hygienic manner. Pre-installation and post-installation montioring is essential.

— Beneficiaries have to be educated about the benefits of using PF latrines. The motivation, promotion, education and user participation are crucial to the success of any low cost sanitation scheme.

— Cost of superstruoture should also be included in the cost of construction of PF latrines. The superstructure over the latrine cubical should be constructed simultaneously with the latrine to ensure its immediate use.

The conversion of dry latrines into PF latrines is not upto the satisfaction level due to various reasons like inadquacy of funds etc. in Madhya Pradesh. The implementation of the sanitation project in the light of suggestions given above, will certainly improve the overall sanitation situation. □

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is the inferior quality of goods supplied by SSI units

Rich Endowment

Orissa is endowed with vast mineral, forest and agricultural resources and a long coastline It has also abundant natural and human resources There are also a large number of liberalised promotional methods and promotional agencies But in spite of all these efforts, particularly steps since 1980, the growth of industries has been slow It is an industrially backward state Even though Orissa has vast mineral resources, except Rourkela Steel Plant (RSP), no other large industrial unit based on mineral resources was set up till 1981 NALCO was set up to exploit around 1000 million tonnes of bauxite deposit in Orissa,

As mentioned earlier, NALCO has its alumina plant at Damanjodi in Koraput district which is an underdeveloped district and the smelter plant and captive power plant in Anugul which is in developed Dhenkanal-Talcher-Anugul industrial belt. Anugul is in Dhenkanal district. There are 39 registered units (1984-85) in the whole district, and 147 commercial establishments in Anugul, 88 in Talcher and 99 in Dhenkanal Municipal area Total number of SSI units is 162 with employment of 1187 in Dhenkanal district Some of the units are in Industrial Estates. There are 15 units in Anugul Industrial Estate, 18 in Mahisapat, 7 in Korean, 8 in Talcher Industrial Estates. The number of aluminium-based units in Dhenkanal district is 6 out of which 3 are in Anugul Around 35 units in the district are supplying ancillary items, mostly iron and steel fabrication to NALCO (Anugul) out of which 9 are in Anugul. Around 67 units in Orissa are utilising aluminimum ingots from NALCO for their product Most of the units have come up in Cuttack and Puri districts There is also rapid growth of informal activities around NALCO plant and residential area There is also growth of commercial trade, transport, agricultural and allied activities due to the establishment of NALCO at Anugul.

The aluminium scenario in Orissa will undergo a dramatic change due to the current economic scenario such as (i) glut in international aluminimum market and falling price of the metal, (ii) expansion and modernisation of a private sector aluminimum company viz HINDALCO—outside Orissa but inside India, (iii) clearance of two mega aluminimum projects by the Government of India which will come up in Orissa—Rs. 1900 crore project of L&T and Rs. 2000 crore project jointly by INDAL and TATA, (iv) Working of INDAL and ALIND at Hirākud in Orissa, (v) Possible opening up of BALCO in public sector in Padmapur in near future and (vi) of course the recent modernisation and diversification programme of NALCO itself.

Due to these factors, there is a great scope of setting up of new industries for utilising the aluminimum metals through the forward linkages of Aluminium Plants as well as indsutries to supply ancillaries/inputs/spares and consumables to the aluminimum plant □

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Handloom Sector—Renewed Thrust To Weavers' Welfare

ETHNIC designs, woven in bright colour fabrics bear a distinct seal of traditional artistry of an Indian weaver. With increasing fad to go for 'ethnic' clothes and its popularity among the dress designers to give an 'exclusive' range, handlooms have found a new fallow field at home and abroad. About 27 per cent of the total cloth produced in the country comes from the handlooms which earn substantial foreign exchange. Though carving a lucrative export market for itself, handlooms remain largely village based, practised as an ancestral occupation.

The handloom industry, in fact, is the largest economic activity after agriculture and provide direct or indirect employment to about 10 million people in India. Today there are approximately 39 lakh handlooms in India, of which 22.1 lakh are commercial looms concentrated in Andhra Pradesh, Assam, Manipur, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal. It is estimated that about 156 lakh families are engaged in this activity of which 60 per cent are women.

Health Care

As most of the weavers engaged in handloom industry fall in the unorganised sector, Government has taken special care for the development and welfare of the handloom weavers. In a recent move, a new health package scheme has been announced in March this year, to provide medical assistance for weaving related diseases and health problems of the handloom weavers Under the scheme the weavers will be provided financial assistance for treatment of diseases like asthma, T.B., and inflammation of alimentary system and covering the expenses for regular eye check-up and spectacles. It would also extend maternity benefits to women weavers and to the women in a weaver's household. For taking permanent measures of family planning additional compensation would be given. Priority would be given to develop infrastructure for primary health care and supply of drinking water During the current year Rs 369 648 lakh has already been released to the seven States of Assam, Bihar, Kerala, Madhya Pradesh, Orissa, Tamil Nadu and Uttar Pradesh for the scheme.

The health package scheme is being implemented as part of welfare package which includes thrift fund scheme and group insurance scheme In the current year, budgetary provision has been made to the tune of Rs 6 crore for the entire welfare package whereas the Eighth Plan outlay for welfare package is Rs 25 crore

Protective Measures

Another major scheme launched in March is for the rehabilitation of riot affected handloom weavers. The scheme envisages provisions for construction of worksheds, supply of looms and margin money for working capital to the weavers whose looms, worksheds, raw materials, etc. were destroyed or damaged in recent riots. The assistance to the tune of Rs. 4000 for construction of worksheds and Rs 2000 for margin money would be provided by the Centre. For purchase of the loom Rs. 2000 as grant and Rs. 2000 as loan would be given by States and the Centre on matching basis. The funds are met out of the available budget provisions under schemes like project package scheme and margin money for destitute weavers.

The State Governments have been asked to submit proposals for rehabilitating the affected weavers immediately Following their proposals, Rajasthan and Uttar Pradesh have been released Rs 11.5 thousand and Rs. 10.40 lakh respectively. For the year 1993-94, a budget provision of Rs. 15 crore has been made under Project Package Scheme, part of which would be available to assist the weavers during the current year. The Eighth Plan outlay approved for Project Package Scheme is Rs. 46 crore.

Integrated Development

The Project Package Scheme is a composite scheme to take care of the needs of the weavers with a specific target of developing a particular product or area or type of weaving Also in the identified villages comprehensive support is being extended to supply equipment and upgrade their managerial skills along with ensuring the regular supply of raw materials to upgrade their skills and increase productivity. Such concerted and need based attention is given to weavers under the Integrated Handloom Village Development Scheme (IHVDS) which aims at their overall development by providing adequate housing facilities and creating community assets.

In a major departure from the

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Public Sector Heavy Units Look Up

THE 48 Public Sector Undertakings under the administrative control of Department of Heavy Industry achieved an aggregate out-turn of Rs. 16,152 crore during the last two years reflected a growth of 15 per cent over the out-turn of Rs. 13979 crore. The undertakings which achieved significant growth in production are Bharat Heavy Electricals Ltd , Andrew Yule & Company Ltd , Bharat Bhari Udyog Nigam Ltd., Bharat Yantra Nigam Ltd , Heavy Engineering Corporation Ltd and Hindustan Newsprint Ltd

The undertakings have achieved a significant growth in the exports Total exports were Rs 1772 crore in the last two years by these undertakings as compared to Rs 1343 crore in the previous two years, signifying a growth of 32 per cent

With a view to enhancing the global competitiveness of Maruti Udyog Ltd (MUL), facilitate inflow of foreign exchange to finance MUL's expansion programme and to give it more autonomy in its operations a Subscription and Amendment Agreement was signed among the Government of India, Maruti Udyog Ltd and Suzuki Motor Corporation, Japan (SMC) on June 2, 1992 to enable SMC to increase its equity in MUL from 40 per cent to 50 per cent Consequently, MUL as a non-Government company is likely to achieve international competitiveness

As a part of restructuring of public sector, studies in respect of three major enterprises, namely, Bharat Bhari Udyog Nigam Ltd., Bharat Yantra Nigam Ltd and HMT Ltd. with the aim of making their operations competitive have been completed by the foreign consultants with World Bank grant and action for implementation initiated. A package of Rs. 1500 crore in fresh investments is being contemplated for these companies

The first phase of Rihand-Delhi High Voltage Direct Current (HVDC) Project, jointly executed by BHEL and Asea Brown Boweri for NTPC was inaugurated on July 6, 1991 Bharat Heavy Electricals Ltd 's scope of work included design, manufacture, erection, testing and commissioning of 2 Nos of 400 KV, Rihand-Delhi convertor Terminals and 2 Nos PLC Repeat Station

Bharat Heavy Electricals Ltd won a prestigious export order for 3 Nos 150 MW gas turbines from Siemens, Germany This is the first time Bharat Heavy Electricals Ltd has received an order for gas turbines from a highly industrialised country in Europe This also heralds BHEL's entry in the export market of gas turbines

Vidyasagar Setu accross the Hoogly river at Calcutta was opened to public with its inauguration by the Prime Minister on October 10, 1992. Erection of this was done by Braithwait Burn & Jessop Construction Company, a subsidiary of Bharat Bhari Udyog Limited This is one of the longest cable stayed bridges of the world and the first cable stayed bridge constructed in India.

Bharat Heavy Electricals Ltd has set up "The Amorphous Silicon Solar Cell Plant" near Gurgaon for manufacture of Amorphous Silicon Solar Cells, marking a major breakthrough in commercial exploitation of solar energy with the development of amorphous silicon technology. The Prime Minister dedicated this plant to the nation on September 18, 1992

There was no major labour unrest during the last two years in any of the undertakings under the Department causing any law and order problem etc. □

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past, the entire approach for planning and implementation of various handloom development schemes has been integrated with the rural development programmes. Action has been initiated under four specific schemes which would increase the coverage of handloom weavers manifold under various rural development programmes. These four schemes, would provide 3.27 lakh loomless weavers with looms, worksheds and working capital in a phased programme in three years A total of Rs. 523 crore will be spent on this of which Rs 130.80 crore would be Central subsidy and the balance of Rs. 392.40 crore would be through bank finance at concessional rates. A suitable monitoring mechanism is being evolved to ensure that benefits of each scheme reach the targetted beneficiaries across the country. □

Use Of Plastics In Agriculture

L.S. Srivastava

PLASTICS are now a part of our daily life. Its use in agriculture too is spreading fast with about 40 per cent of total plastic consumption in our country in this sector Of late, it has also been recognised that plastics offer a new potential for further increasing agricultural yield by enhancing the efficiency of other agricultural inputs already in use.

The use of plastics in irrigation has proved to be a boon in increasing water use efficiency, decreasing waterlogging and soil salanity and minimising wastage during water conveyance, etc. Polythenes are also being used on commercial scale in lining of water storage structures, particularly in laterite and sandy soils as also in canals, reducing water loss through seepage Prudent application of advanced methods of irrigation viz., drip, sprinkler and use of P V.C. pipes in water conveyance has enabled maximum utlization of scarce water resource in desert and semi-arid regions

The wastage during the post harvest storage and preservation can be minimised by using plastics By using black plastics on floor for sun drying of agricultural products 15 per cent time can be saved. Storage life and quality of fruits and vegetables can be increased by simply storing them in polythene packings Polythene storages are also used for enhancing ripening of fruits like Banana, Mango, Lemons, etc Post harvest losses of fruits and vegetables can be significantly reduced by using polythene lined packing material not only in wooden or hard board cases but also in country made bamboo basket packings.

Low density polythene linings which are largely being used for constructing plinth storage structure, fumigation chambers, threshing floor, winnowing floor, drying floor, mixed with mud and cow dung 3 1 ratio or beneath brick floor can work as air tightner, thermal insulation, insect and rodent proof and moisture proof. It is cheaper too and therefore, polythene lined storage bins are also being fabricated for farmers use

Green Houses

Use of plastic green houses for increasing the yield and productivity of horticultural crops, vegetables, flowers and ornamental plants by controlling environment is gaining world wide acceptance These are considered more favourable compared to glass house because of lightness, mobility, flexibility, impermeability, resistance to hail and wind Such green houses help in growing out-of-season crops and quality produce. It also helps in producing disease free, better quality planting material of horticultural crops Plastic green houses also provide better opportunity of producing cut flowers for export purposes Low cost plastic houses for nursery raising is also popular now-a-days

Other Uses

a) Plastics can be used as temporary cover to protect crops from frost, birds, winds, insect attack, etc.

b) The studies have shown that mulching the soil with black polythene not only preserve soil moisture and maintain soil temperature but have increased the yield in mustard and few other crops.

c) In Israel, red colour polythenes are used as mulch in tomato crops for getting dark red colour in tomatoes. Similarly, different coloured polythene mulching are being used as repellent to various insects.

d) In sericulture high density plastic sheets are used as tray for rearing silk worms.

e) Plastic bags are largely used to transport fish seeds packed with oxygen.

f) Lining of compost pits with plastics saves nutrient loss of organic fertilizers into the soil

Plasticulture, therefore, benefits us by increasing crop production, improving quality of produce, reducing storage and marketing losses, lowering cost of production, ensuring early and out-off-season crops, facilitating agricultural practices and maintaining ecological balances. As prudent developmental bankers, therefore, we can also support and encourage use of plasticulture while formulating and implementing various agriculture development schemes and contribute in augmenting our agricultural production. □

The author is faculty member, State Bank Institute of Rural Development, Hyderabad.

Review Article

Paying For Health Care

THIS book is an edited volume of twelve articles by eminent health economists and health policy analysts about health, health care and resources thereof. The idea for the collection of these papers emerged from a workshop on "Health Financing Research" held in 1988 under the auspices of Operations Research Group, Baroda and Ford Foundation.

In his learned Foreword, P K. Umashankar, former Additional Secretary, Ministry of Health and Family Welfare observes that "In India, health finance or health economics research has had a limited focus and coverage.. .. Surprisingly, few universities and Social Science research institutions have shown interest." His view that, in our country, many persons who are ill have no access to the health care system will be shared by many In early July 1993 in a commentary on the World Development Report—1993, Dr. V. Ramalingaswamy, former Director General of the Indian Council of Medical Research (ICMR) and a top health administrator warned that the country faces a general deterioration of government financial health care and that health services for the poor constitute one of the 'garvest crisis in India'. He said that public hospitals are functioning under severe stress with unbearable patient loads and insufficient resources Dr. Ramalingaswamy described the present health care scene by stating that although, theoretically, the poor have access to unlimited health care at all levels, both in urban and rural areas, the situation is vastly different.

In his assessment, "there is large scale misappropriation of services by the affluent and those close to the seats of power, adversely affecting the access of the poor to basic services and to good quality care". Basic public health services and essential clinical care services should be public financed while much of the secondary and the bulk of tertiary care should be largely self-financed, the report suggests Welcoming the policy guidelines, he said that the report raises issues like fees in government hospitals, health insurance and community financing that Indian health administrator ought to debate and resolve

The speed with which old assumptions are shifted by new possibilities is truly dazzling The economic reforms being pursued by the present government have intimate and closely linked policy options in relation to public financing of social services, e.g., education and health care. Already, there are murmurings and discontent among a section of the people opposed to gradual withdrawal of government subsidy on items which are not necessarily benefitting the largest group of poor The publication of the book under review is thus not only timely but also extremely relevant to the present day needs.

PAYING FOR INDIA'S HEALTH CARE: Edited by Peter Berman & M.E. Khan; Sage Publications, New Delhi, 1993; Pages 326; Rs. 295.

Apart from the Introduction—which is lively, informative and thought provoking—by the editors, there are twelve articles included in the volume. The first article by, P. Berman on Health Financing Research in India. Issues, Data, Policy and Programme Measures, discusses the different types of enquiry and applications that can be subsumed under 'health financing research'. His observations that "some regard health as a basic human right (hence a matter of extraordinary or transcendent value), and argue that the State should assure adequate access for all to those actions required to assure health Such an absolute position may be appealing from an idealistic perspective based on social justice, but it is likely to be unaffordable unless some limitation is placed on what can be included as health", and "currently, health financing is everybody's, and nobody's business. The Planning Commission lacks the capacity to carry out a sustained analysis of health financing issues on the scale required in a country the size of India. The Ministry of Health and Family Welfare also does not, at this time, have a single unit with the necessary over-view of the different departments And, in any case, the Centre's role in overall financing of the public sector system is limited To take full advantage of the potential for system reform, some institutional base or bases are needed", deserve notice by the authorities. Ravi Duggal and N H. Anita in their article Health Financing In India A Review And An Agenda call for renewed effort to bring this component of health system development into the forefront

The next article is by V B. Tulasidhar and J V.M Sarma entitled "Public Expenditure, Medical Care at Birth and Infant Mortality: A Comparative Study of States in India". N. Bhaskara Rao, M.E. Khan and C V S. Prasad in their

(Contd. on page 30)

Book Review

INDIA 1992: compiled and edited by Research and Reference Division, published by Director, Publications Division; Ministry of Information and Broadcasting, Govt. of India; Pp 910; Price: Rs 130.

This is the 37th annual edition of India Reference Annual. This compact book gives a birds eye view of this country in almost all its varied facets. In its 31 chapters information with its background is given on a host of topics like Land and the People, the Polity, Defence, Education, Scientific Research, Mass Communication, Finance, Planning, Agriculture, Industry, Labour, etc Various other topics like—India and the World, States and Union Territories, Diary of National Events—1991 and general information—have been appended in addition to information about various awards and laws enacted by Parliament In a nutshell, all facts worth knowing about India have been included in this reference annual. It is a must for all reference libraries.

This book over the years has been proving immensely valuable for all sections of readers—researchers, candidates appearing in various competitive examinations and students in general The printing and get up are attractive.

MDP

MASS MEDIA IN INDIA 1991: compiled by Research and Reference Division, published by the Director, Publications Division, Ministry of Information and Broadcasting, Govt. of India, Pp 334; Price: Rs 120.

The book under review is being brought out annually since 1980. It seeks to focus on significant developments in Mass Media during 1990 mainly for media operators, researchers and students. It highlights the activities of various media organisations of Central Government, States and Union Territories. In the current issue, information has been appended on the Press Institute of India—Research Institute for Newspaper Development (PII—RIND) and Central Institute of Indian Languages (CIIL). The book contains interesting articles on some aspects of journalism covering TV, political reporting, Ombudsman, photo journalism, cartoon and women in journalism—by veteran media persons. On the aspect of production, a little more care was called for considering its select readership.

MDP

(Contd. from page 29)

contribution "The Planning Process and Government Health Expenditure Patterns in India in the early 1980s", show the actual composition of public spending in both programmatic and input terms—a contribution which should be a routine part of health planning. P.R Panchamukhi in an appraisal of Public Financing of the Family Welfare Programme in India, provides an analysis of the balance between administrative and support costs, service delivery expenditure and outputs "Adequacy, Equity, and Efficiency of Public Expenditures on Nutrition in India" is the topic dealt with by K. Subbarao. It is shown that nutrition expenditure suffer from problems of targeting and focus similar to those found in inter-State comparison of health expenditure It is to be hoped that in future nutrition will be included in discussions of health expenditure and programme development The Chapter on "The Private Health Care Sector in India" is by Ramesh Bhat He laments on the absence of purposeful health policy analysis or action relative to private health services. "Health Sector Development and Financing in Pakistan and some Comparisons with India" is the chapter by Roger Jeffery. It is observed that 'health' has received a much lower priority in Pakistan's plans, and the private sector has been allowed a much freer rein It is also significant that India is a 'superior health achiever' in terms of the relationship between infant mortality rate and per capita GNP The last four articles focuses on the operational level providing examples of relevance of the analysis of cost and financing and demand for health care These are on Hospital Costs and Financing in Maharashtra by J K Satia and N S Deodhar, Concepts and Practices in Health Care Insurance Schemes and Recent Examples in India by G Giridhar, Use of and Spending on Curative health Care in a Tribal Block of Madhya Pradesh by D.K Mishra, G.D Pandey and P K. Sinha and Community and Self-Financing in Voluntary Health Programmes in India by Priti Dave.

How to pay for India's health care is an important issue This publication contains information that will help in finding an answer to the question. All those concerned with the topic will find the book a timely and useful contribution.

Dr. P.S.K. Menon

yojana

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Textile Exports And Quota Policy

G. Srinivasan

In keeping with the line of liberalisation, the new policy aims at netting increased unit value realisation for quota items and simplification of procedures. It is up to the textile and garment exporters to tap this exporter-friendly policy to achieve a quantum jump in export earnings, says the author.

A new long-term textile export quota policy for 1994-96, designed to be exporter-friendly and encouraging increased unit value realisation for quota items, has been announced The new policy, applicable for export of textiles and garments in restrained textile items to the United States, Canada, European Community, Austria, Finland and Norway from next year till 1996, envisages stricter monitoring of quotas, while removing restictions that might hamper utilisation of quotas. Quota exports of textile items during the current fiscal year are estimated to touch a massive Rs. 10,000 crore

Before the details of the new quota policy are presented, it would be germane to note that the country's age-old textile industry accounts for 20 per cent of the industrial production and provides employment to about one and a half crore people. What is particularly noteworthy is that textiles and clothing exports contribute 30 per cent of the aggregate exports of the country. A matter to ponder over is that as the import content in textile exports and production is relatively low and textile exports have emerged as one of the highest net foreign exchange earners for the country. Textile exports last year amounted to Rs. 19,104 crore (in U.S. dollar terms 6597 million), as compared to Rs. 14,379 crore (5785 million dollars) in 1991-92. The performance of the country's textile exports was so encouraging that the Government has fixed a higher target of Rs 25,000 crore or 7,400 million dollars for the current fiscal year (1993-94) The boom in exports has been unprecedented despite quota restrictions in many importing countries.

The Abid Hussain Committee (1990) which went into the review of the progress of implementation of Textile Policy of 1985, said the market share, of India in world clothing exports is about 2.6 per cent to 2.7 per cent and in textiles about 3.5 to 3.7 per cent. It said a reasonable target to be achieved in the next five years should be to try to attain at least five per cent of the global market share in textiles and clothing and to export at least 15 per cent of the total production in the country.

Although the country's preponderant share of textile exports goes to quota countries as the global trade in textiles and clothing is governed by the restrictive Multifibre Arrangement (MFA), a redeeming development is the rising share of non-quota items in the country's total textile exports which were reported to have touched almost 40 per cent last year Be that as it may, till the current MFA is phased out over a span of ten years, pending a positive outcome of the ongoing Uruguay round of trade talks, India's exports of textiles and clothing would continue to be governed by the quota regime. As such, the importance of the new quota policy for textiles and garments for the three year period 1994-96 could hardly be exaggerated.

Under the new policy for textiles, including yarn, fabric and made-ups, the number of systems of allocation

had been reduced from seven to five, as too many systems of allocation lead to fragmentation of quotas. For the past performance entitlement (PPE) system, against the current policy of 40 per cent, the new policy provides for 55 per cent and the increase in allocation is likely to bring about greater stability and continuity. Within this 55 per cent PPE, 10 per cent of quota entitlement is being reserved for high value entitlement to encourage exporters whose unit value realisation during the base period was more than the average unit value realisation for the relevant country/category.

The quotas under the new policy with the existing quota in brackets have been fixed for manufacturer exporters entitlement (MEE) system at 15 per cent (12 per cent), for non-quota exporters entitlement (NQE) system at 10 per cent (13) per cent, for powerloom exporters entitlement (PPE) system five per cent (same) and for ready goods exporters entitlement (RGE) system at 15 per cent (10 per cent) No quota has been alloted for contract reservation system (CRE) and Public Sector Entitlement (PSE), compared to 18 per cent and two per cent respectively in the existing policy

A notable addition is a separate scheme of allotment for export of handloom made-ups to the U.S., under which 55 per cent is allocated to PPE, of which 10 per cent is for high value entitlement, 35 per cent is allocated for RGE and ten per cent for NQE.

In the case of garments, the number of systems has been reduced to three, apart from the first-cum-first-served (FCFS) system which would cover only allotments from surrenders and flexibilities. The percentage of annual levels of exports for garments under the PPE allocation has been enhanced from the existing 60 per cent to 70 per cent in the new policy of which ten per cent had been reserved for high value entitlement. The additional ten per cent allocation under the PPE had been reserved for those exporters whose unit value realisation during the base period is more than the average unit value realisation for the relevant country/category. For the MEE, the 20 per cent allocation has been retained and for the first time two per cent allocation has been given to newcomers.

For the NQE under garments, the allocation has been cut from 18 per cent in the present policy to 10 per cent, though the NQE for handloom garments allocation was retained at two per cent. The ready goods exporters' entitlement system (RGE) had been increased from 10 per cent to 15 per cent, while the contract reservation system (CRE), currently at 18 per cent has been done away with. The public sector entitlement of two per cent for garment exporters had also been dispensed with.

Significant Feature

A significant feature is a separate scheme of allotment for export of handloom made-ups to the U.S. in order to increase export of these items to the United States. The allocation percentage was that for the PPE 55 per cent, out of which ten per cent is towards high value entitlement, 35 per cent for the RGE and 10 per cent for the NQE. Another feature is that the base period for calculation of past performance and non-quota entitlement has been reduced from two years to one year. The division of allotment year into two different period of January-May and June-September for utilisation of the PPE, the NQE and the MEE had been dispensed with. Entitlement in these systems could now be utilised up to September 30 without any restriction and could be extended upto December 31, against 25 per cent earnest money deposit (EMD) or bank guarantee (BG) in the case of textile items of 30 per cent EMD/BG in the case of garments. The earlier irksome provision in the case of garment entitlement for submission of letter of credit for such extension has also been removed.

Another feature is that the facility of submitting legal undertaking (LUT) for extension of entitlements in the garment sector has now been extended to exporters who hold an entitlement of 25,000 pieces in any one of the systems of PPE or NQE or MEE. Under the current policy, this facility is available only to exporters who hold 25,000 pieces in PPE systems.

The new policy also postulated effective measures for preventing quota fraud. An enforcement committee headed by the Textile Commissioner would deal with quota fraud which would have the authority to debar any defaulting exporters from obtaining or utilising export entitlements for specified period of time. To plug the loopholes of misdeclaration by the manufacturer exporters entitlement (MEE) for garments, a panel of chartered accountants has been envisaged besides the joint inspection of MEE units by officers of the Textile Commissioner, Textile Committee and the Apparel Export Promotion Council (AEPC).

Finally, to regulate the activities of quota brokers, the new policy stipulates registration of quota brokers or quota agents with AEPC. There would be security deposit and annual subscription for quota agents and provisions for debarring any quota agents found indulging in fraud.

The Textile Ministry has stated that the new policy attempts to balance the twin objectives of liberalising some of the restrictive provisions to the current policy and alongside tightening the monitoring

(Continued on page 8)

Reorienting Rural Industrialization

Dr. Pramod Pathak

The author feels that our policy of industrialisation of backward areas has missed the angle of employment of local people. The emphasis should have been on the use of local resources and local markets. Rural industrialisation has to be linked up with the overall industrialisation process, the author opines.

DEVELOPING industrially back ward areas has always been an important feature of industrial policy of various governments. However, despite various efforts, revival and rejuvenation of village and cottage industries has not been achieved and integration of industry in the life of the people of rural areas remained an elusive goal and chances are that raising of the plan outlay by 62 per cent to Rs. 5010 crore will not help much. Something more, rather some thing else, also needs to be done.

The concept of backward area development was formulated to achieve various objectives Apart from correcting regional imbalances the idea was to provide for spatial diversification of industries so that the industrially developed centres do not become islands of affluence attracting large number of migrants from far and near and thus becoming thickly populated townships of unmanageable proportions If this happens, the entire socio-economic and cultural fabric would collapse with uncontrollable problems of housing, slum dwelling, sanitation, pollution, communication and law and order, rendering the entire development exercise ineffective But, we have neither been able to check this migratory tendency of rural folk to urban centres, nor been able to meet other objectives of the programmes of backward area development like improving the lot of local population of those areas through employment generation. Thus, the backward areas have remained backward despite massive efforts for their development. While masses are in as poor conditions as they were, the industrial administrators in the centre and states continue to get credit for high achievements in terms of number of industrial units located and capital invested, etc. in backward areas.

It forces us to ponder over several related questions like what the objective behind the policy of dispersal of industries is? What are the incentives given for the location of indutries in backward areas? Who gets the benefit, and who ought to get benefit? Experience shows that location of large industrial units or complexes in backward areas do not necessarily ensure development. Rather, they become islands of modernity surrounded by the sea of rural backwardness and poverty. We ought to take a fresh look at all these aspects as development of rural areas has to become a vehicle of growth of a developing country like India.

Let us find out what we have missed. Our policy of industrial development of backward areas missed the employment angle i.e employment of local people. In the existing schemes of backward area development, machinery and raw materials come from outside, the products are sent to urban markets, and the managers, technicians, super -visors and skilled labourers are all from outside, making little or no impact on the life of the local people The emphasis should have been on the use of local resources and local markets thus making the approach integrated and holistic Integrated in the sense that development of both people and the area should be the aim and holistic in the sense that the advantage of development should spill over the areas adjoining the target place so that the islands of affluence are not created and developed. Such an approach will help improving the quality of life. Not only the people who are directly connected should be benefitted but also the general populace of the whole area should stand to gain, at least to some extent.

Rural industrialisation should be looked upon as a means of development which would bring about increased integration between urban

and rural areas rather than being merely an instrument of developing rural areas without any deliberate efforts to link it up with overall process of modern industrialisation. Walking on two legs rather than limping, that is what the strategy of simultaneous development of modern urban industry and traditional rural industry will amount to and we can take a definite cue from the Chinese experience in this regard. Rural industrialisation, though an effective tool of rural development has to be linked up and integrated with the overall industrialisation process, making it an integrated plan for the industrialisation of the country as a whole. Rural industrialisation should be one of the major economic and social objectives of the plan of economic development and it can be achieved only if the entire development plan and in particular the entire plan of industrialisation is framed so as to attain this objective. It must be planned, to begin with, around a series of centres in the countryside wherein provision is to be made for gradual spreading out in phases.

Incentives Vs. Results

The Government has been quite magnanimous in giving incentives and concessions to entrepreneurs to set up industries in backward areas In fact, the concessions in the form of central investment subsidy, concessional finances, transport subsidy, central assistance for infrastructural development, income tax incentives etc. are quite attractive from the investors point of view. A brief description of them is as follows:

Central Investment Subsidy Scheme

The backward areas of the country have been reclassified into 3 categories.

i) Category 'A' districts include "No industry districts and special region districts"—subsidy of 25 per cent subject to a maximum of Rs. 25 lakh (raised to Rs. 50 lakh w.e.f. 1.4.85 set up in Hill Districts in category 'A').

ii) Category 'B' districts will be eligible for 15 per cent subsidy subject to a maximum of Rs. 15 lakh.

iii) Category 'C' district areas were made eligible for the subsidy for the first time under the revised graduation. In these districts, the subsidy is computed at the rate of 10 per cent subject to a maximum of Rs. 10 lakh on the fixed capital investments.

(b) Concessional finance Scheme

All the term lending institutions, viz. Industrial Development Bank of India, Industrial Finance Corporation of India and Industrial Credit and Investment Corporation of India have extended financial assistance on concessional terms to all new and existing industrial projects having expansion schemes in respect of the projects located in 300 districts selected by the government. The concessions given by these financial institutions are in the form of lower interest rate, lower underwriting commission for shares and debentures respectively, etc.

(c) Transport Subsidy Scheme

The scheme envisages grant of transport subsidy to industrial units in selected areas to the extent of 75 per cent of the transport costs of industrial raw materials which are brought into the finished goods and which are taken out of the selected areas between locations of new/existing units and identified railheads/ports listed. With effect from 1.9.1986, the percentage of transport subsidy was enhanced from 75 per cent to 90 per cent for units located in the North-Eastern Region, Andaman & Nicobar Islands, Lakshadweep and Sikkim and w.e.f. 1.12.1986 for units in Jammu and Kashmir

(d) Central Assistance for Infrastructural Development

One of the impediments towards rapid industrialisation in the backward areas is the absence of infrastructural facilities. Central Government assists the State Governments to take up infrastructural development in one or two identified growth centres in each No Industry District. The assistance from the Central Government is limited to 1/3rd of the total cost of infrastructural development subject to a maximum of Rs. 2 crore per district.

(e) Income Tax Incentives

Twenty per cent of the profits and gains derived from newly set up industrial undertakings after 31st December 1970 in any industrially backward area are exempt from income tax for a period of 10 years with certain provisions as elaborated in section 80 HH of the Income tax Act, 1961 read with Finance Act 1985. The deductions are available in the assessment year relevant to the previous year in which the industrial undertakings begin to manufacture or produce articles

(f) They are eligible to procure machinery on hire purchase basis from the National Small Industries Corporation Ltd.

(g) A scheme for engaging approved private consultants for assisting small scale industrial units and the Small Industries Service Institute in areas where technical expertise does not exist is in operation. Small scale industrial units located in backward areas are provided these services free

(h) Consultancy fee charged for services rendered by Small Industries Development Organisation in area/district survey feasibility studies, preparation of project reports, appraisal and evaluation of projects and in-plant studies, in respect of units located in the notified backward districts/areas would be 50 per cent of the prescribed rates.

(i) Small scale industrial units in such districts/areas can avail of the common facility services and skill

upgradation services rendered by SIDO at concessional rates.

However, inspite of all this, the results have not been very encouraging in rural areas as far as attaining the objectives are concerned. Rather, it has been a bad bargain from the point of view of the Government and it is precisely for this reason that a fresh look at the whole thing is required so that the major problem areas which really matter can be identified

Problem Areas

The basic problem is that the whole impetus has been put on wrong wheel rendering the development process slow and ineffective in the desired direction. It can be said that the rural industrial development programme has become a programme of urbans. The plans for rural backward areas are chalked out in the cities and are not area specific to suit rural needs and the benefits are reapted by the urban entrepreneurs with products serving the urban market leaving the lot of the rural folk unchanged Some of the problem areas which have to be tackled are:-

i) What should be the aim of development of rural backward areas, or development of what? This question is most important as the benefits of industrialisation must accrue to the rural people if development process has to raise its socio-economic level.

ii) The question which runs as a corollary to first one is whether it should be an isolated development of a small rural pocket or whether the development should provide a linkage, a sort of a continnum to industrialisation process.

A final question is as to what kind of technology and industry should be used? This question is again linked to earlier ones as to whether rural industrialisation is to be looked upon as a way of containing the rural workers and stopping them from migration or bringing about a cultural transformation and improving the quality of rural life.

The development of rural backward areas should become a programme for industrialisation of the whole country. It is also important that the local entrepreneurs should be identified, trained and encouraged to play a role in the development of the area And the aim should be to create managerial and supervisory talent from the region itself, as also the skilled workforce. It should be a holistic and at the same time open approach, i.e. programme of the people of the area, by the people and for the people Not that outside investors should be discouraged but insiders should be encouraged and involved □

The author is faculty member and consultant, Deptt. of Industrial Engg. & Management, Indian School of Mines, Dhanbad.

(Continued from page 5)

of quota utilisation and prevention of quota fraud.

Reactions to the new policy were on the whole on predictable lines with the Apparel Export Promotion Council (AEPC) stating that it would impart the much-needed impetus to garment and knitwear exports from the country. Raising the PPE allocations to 70 per cent from the existing 60 per cent was a healthy step for providing stability to exports, it said, adding that the reduction of base period from two years to one year was "a retrograde" step as one year is too short a period for assessing genuine export performance

Now that the government has put in place a liberalised quota policy for textile exports, the onus is on the industry to acquit itself by availing of the new exporter-friendly quota policy to enable the country to score a quantum jump in export earnings and achieve the Eighth Plan final year (1996-97) target of 33 6 billion dollars textile exports □

The author is Spl Correspondent, PTI, New Delhi

Correction

In our issue dated October 15, 1993 in the article "Annie Besant – Forgotten Heroine Of The Freedom Struggle" by Shri K G Joglekar, the fourth line of the opening paragraph should read - For the next 40 years and not 60 years In the issue dt September 30, the author of the article of "Solar Power For Development", Shri Amitabha Ray, is Research Officer and not Sr. Research Officer in Planning Commission The errors are regretted

Gandhi And The Indian Economy Today

Malcolm S. Adiseshiah

Part II

EMPLOYMENT: Our problem of employment is multifaceted. First, we are only sure of how many are employed in the organised (factory) sector and here the scenario is daunting. The organised industrial sector has been increasing over the past five years at 8 to 9 per cent per annum but employment within it is not increasing, but actually declining as shown in the following table

The table shows the falling rate of employment growth from 2.8 per cent in 1972-73 to 1977-78, to 2.2 per cent in 1977-78 to 1983 and further to 1.51 per cent in 1983 to 1987-88 The rural employment growth for the last period—which is almost that of recent times—was a low 0.95 per cent. The unemployment data in the table shows an increasing rate for this period: the fall in unemployment recorded for the daily status means a shift in the structure of unemployment from underemployment to open unemployment. Second, on this basis, we can compute that in the coming five years (the Eighth Plan), we will have 65 million persons looking for employment comprising 28 million being the becklog of the unemployment from the past five years (the Seventh Plan) plus an increase in the labour force of 37 million during the next five years (the Eighth Plan). Third, we do not know the status of employment, unemployment, and underemployment in the unorganised sector, which covers the non-factory sector and employs over 88 per cent of the labour force. In other words, we are only sure of the status of the small 12 per cent. Does this employment and unemployment scenario ring a bell of what Gandhi was concerned about and warned us against? We may not agree with his outright declaration "khadi is the only true economic proposition in terms of the millions of villagers, until such time, if ever, when a better system emerges of supplying work and adequate wages to every able bodied person above the age of sixteen, male or female, found in the field, cottage or even factory, in every one of the villages in India, or till sufficient cities are built so as to give the villagers the necessary comforts and amenities that well-regulated life demands and is entitled to." Here khadi may be interpreted to include other village industries.

Table

A Growth Rate of Employment (per cent)			B % of Unemployed to Labour Force for 1983 and 1987-88			
1972-73 to 1977-78	1977-78 to 1983	1983 to 1987-88		Usual status	Weekly status	Daily status
			1983	2 77	4 51	8 25
2 8	2 2	1 51	1987-88	3 77	4 80	6 09

Source NSC (27 32, 38 and 43rd rounds) and Expert Committee on Population Projections
Daily status is employment per day
Weekly status is employment per week
Usual status is employment per year

Gandhi emphasised the role of cottage industries as the only way of doing away with penury and making famine of work and wealth impossible. He said: "A vast country like India

with her millions of people having four months of enforced idleness on their hand could not afford to have large-scale industries and yet live a life of tolerable comfort. Mechanisation is good when the hands are too few for the work intended to be accomplished. It is an evil when there are more hands than required for the work, as is the case for India." The core of truth in this position of Gandhi on employment has been accepted by the government and people from the start of Planning. In the Second Plan, when a start was made on developing heavy industry with its call for large investments and large-scale production factories, for employment generation and meeting the employment needs of the country, special provision was made for the particular development of small-scale industries and, from the Third Plan a similar special emphasis was placed on agriculture. The current situation is that there are 17 lakh small units of all types only in the organised sector which employs 120 lakh persons. There are, in addition, crores of small units in what is called the informal sector in both the urban and rural areas.

One of Gandhi's thoughts set forth in evocative term "antyodaya" was picked up and used from 1977-79 to identify the poorest of the poor and help him attain self-employment. Small industries have been classified in three groups: (a) the organised small enterprises which were defined in 1966-67 as those with plant and machinery up to Rs. 7.5 lakh which has been gradually increased to Rs. 10 lakh in 1990; (b) the ancillary units with capital up to Rs. 10 lakh which has also been raised today to Rs. 75 lakh; and (c) the tiny units with investments up to Rs. 2 lakh, now increased to Rs 5 lakh. All the three groups of small industries receive various forms of subsidies in the form of low interest rates, priority in bank loans and credits, in marketing, in testing of their equipment and in training of the personnel needed. In 1991 the tiny sector was broadened to include the services which is today the major contributor to our national income at 39 per cent compared to agriculture's 28 per cent and industry's 27 per cent. This means all small service units like cleaning, security, consultancy, domestic service etc. will become eligible for the incentives referred to earlier. There is still a lot to be done in regard to the employment generating small industrial sector which suffers from serious "sickness" of 14 per cent of the total units, of which 93.2 per cent are regarded an incurable Similarly the various programmes inspired by Gandhi's concept of "antyodaya" are neglected by state governments which have not used even 50 per cent of the allotment made to them for those units. Similarly the agriculture sector, particularly with regard to small and marginal farmers and the landless labourers, is the key to its employment-generating potential and needs more investment and resources which in the coming years (from the VIII Plan onwards), will, it is hoped, be more effective and satisfactorily met.

Inequalities

Inequalities in income is the result of poverty and the poverty of the mass of the people of the country was one of Gandhi's main preoccupations. Poverty takes two forms—absolute poverty and relative poverty. Absolute poverty is the lack of a minimum amount of food, clothing and housing to keep oneself and one's family alive. Gandhi conceived the minimum living wage as being the wage to cover the subsistence of the worker and, his family and if this minimum was not available to him, there is poverty in the absolute sense. According to Gandhi, "if the actual payment is less than the minimum living wage rate and the worker was unable to maintain himself and his family members, it is poverty, tantamount to exploitation." In the early 1960s, we took over this minimum wage concept of Gandhi and generalised it to cover the mass of workers who are self-employed or in the unorganized sector and not only employed for a wage. And so we have priced food, clothing and housing that a person needs and called it the poverty line. Taking it as an indicator the minimum calories that a person needs, we have established the monthly poverty line at Rs. 49.09 per person in the rural areas and Rs. 56.64 per person in the urban areas in 1973-74 and allowing for the inflation that has since taken place, we have now established it at Rs. 89 per capita in rural and Rs. 111.2 per capita in urban areas. If we assume that a family consists of a father, mother, and three to five children, we must multiply this per capita figure by 5 to 7 to arrive at the minimum for the family. Those who do not earn this amount are in poverty. On this basis, I have computed that the number of our poor (who are not able to spend the amount indicated) was 322 million in 1988. Inspired by Gandhi's special programme of khadi, which he regarded as the Sun of the whole industrial system, and village industries which for him were to receive their warmth and sustenance from the Khadi industry, we have today developed special poverty alleviation programmes called the Jawahar Rozgar Yojana, which combines the National Rural Employment Programme (NREP) and Rural Labour Employment Guarantee Programme (RLEGP), the Integrated Rural Development Programme (IRDP), the Training of Rural Youth for Self-Employment Programme (TRYSEM), the Special Employment Programme for Urban Poor (SEPUP), and the Minimum Needs Programme which aim at contributing 42 per cent of our poverty alleviation effort. The other 58 per cent is due to the more general programme of the small-scale industries referred to earlier, the renovated

programme of agriculture, fisheries, and animal husbandry. How far these programmes are effective in reducing the number of people living in poverty is a worrisome question, because the data show that the number of persons whom the programme is able to lift above the poverty line is a little less than the new generation of those born into the poor families. That is why my studies show, in contrast to that of the government data and claims, that the number of the poor has been stagnant over the last two decades I am convinced that the only way to alleviate poverty and ultimately to eliminate it is to adhere strictly to Gandhi's system of decentralised production, and its corollary today in decentralised planning and execution of all such plans and programmes at the village, panchayat, mandal and block level because only the villager knows the facts of poverty and how to deal with it.

Turning next to relative poverty, which is the coexistence of a majority of people being poor, as defined above, and a small minority being rich and well-to-do, several issues arise. First, Gandhi's doctrine to trusteeship, which he saw as a means for correcting the inequalities of assets ownership, emanates from his overriding belief in non-violence to bring about a change in the unequal social relationship without violence He also had a profound belief in the goodness of human beings and so appealed to the higher sense of the landlord and the industrialist To Gandhi, every well-to-do person must consider himself a trustee of all his wealth—"what wealth or income a person retains should be twelve times the minimum income that a poor person has. The trustee has no right to use or misuse his wealth as he likes. The only portion to whose free use he is entitled is the one which is necessary for his own existence, its maximum being determined not by himself but by the State." Gandhi may also have been influenced in formulating this trusteeship doctrine by the life and example of Jamnalal Bajaj whom he adopted as his fifth son Coming from one of the richest families, Bajaj placed all his wealth and possessions at the disposal of Gandhi and his programme of fighting poverty and inequalities He helped with the housing needed by Vinoba Bhave who tried to put into operation the doctrine of trusteeship in his programme of the Bhoodan Yajna Looking at the totality of the effects of this doctrine of trusteeship, I feel that Gandhi's optimistic view of human nature was misplaced and so his doctrine has not become effective in society It certainly is a counter to the Kuznetsivian thesis that there is a conflict between growth and equality which the Planning Commission in the 1960s seems to have accepted Each of us has the moral duty to act as a trustee of our possessions, even though the doctrine itself is not being applied nationally

On inequality of assets, the land reform programme which is aimed at limiting the amount of land that a person can own is not even one quarter way through. Studies of the Reserve Bank of India show the worsening of the distribution of rural assets between 1961-62 and 1971-72, and that in 1981-82, the bottom 30 per cent rural households owned 5 per cent of rural assets, while the top 5 per cent owned 46 per cent The Annual Report of the Department of Rural Development 1986-87 points out that on the basis of the results of the 1980 Agriculture Census, the lands that should be declared surplus are 216 52 lakh acres and not 76.78 lakh acres, which is being used as the base for the programme by the government As of now, the government has declared only 73.48 lakh acres surplus and actually distributed 44.92 lakh acres to the landless poor The land reform legislation needs to be restructured and vigorously pursued, removing it form the jurisdiction of the courts.

Again, on non-land assets, there is need for state regulation of the amount of shares and securities that a person can have and the amount of dividends accruing from them, including clamping down on the underground economy I notice that this kind of ultimate state control was envisaged by Gandhi who talked about the minimum living wage and the maximum earning of a person which the state should regulate

The Underground Economy

The underground economy (I do not use the common term "Black economy" or "Black money" because I do not believe that black is morally bad and so I do not want to use a racist term) may have existed in Gandhi's days, particularly during World War II but it was for him to be countered through his belief in the instruments of truth and non-violence Further, there were other matters flowing from the poverty of the people which demanded his immediate attention and about which he felt that he and people could do something Today the underground economy is increasing, multiplying and developing in all directions—in smuggling, in over-and under-invoicing, in salting away funds earned abroad in tax-free havens, in presenting false accounts of one's income and assets in order to escape taxation—income tax, corporate tax, gift tax, wealth tax, sales tax, and estate duty Apart from these illegal forms of making money and building up one's assets, there is the government tolerated *havala* market which coexists with the legal stock exchange and commercial banks, where the rupee is exchanged for dollars at illegally higher rates and the illegitimate funds that one has, is laundered and converted into legitimate funds Further, there is the problem of tax avoidance in which all well-to-do persons and most top business houses are engaged.

When I was in Parliament, the

government presented to us members of Parliament, a list of 100 of our top companies which do not pay any taxes, and as a result lose from this source about Rs. 3000 crore tax revenue every year. In 1983, the government requested the National Institute of Public Finance and Policy to review this situation and make an estimate of the amount of illegal money and wealth in the country. The Institute undertook a study only of the funds which evade taxes, leaving out all the other facets of the underground economy, and in June 1985 presented its conclusion that in 1984-85, Rs 36,780 crore was the illegitimate funds accumulated through escaping taxes. One of the characteristics of this illegitmate money and assets is that like the ticks on a dog, it circulates only within itself, the circle of the underground economy (except when it is laundered), and multiplies itself by at least 25 per cent every year

My studies show that it is about 40 per cent of our national income at Rs. 100,000 crore today. One very disturbing feature of this growing stock of illegitimate money is that it has entered our political life—Parliament and the State Legislatures The law places a low ceiling on election expenses, but each candidate spends 5-6 times that ceiling. Here, the illegitimate money holder is able to enter the political system and purchase Members of Parliament and state legislatures through their large contributions to the candidate's election expenses As a *quid pro quo*, he is able to hold the member to ransom and obtain all the legislative paradigms and facilities that he wants.

In addition, a staff study by the International Monetary Fund on the basis of data available to it in 1988 concludes that about $2 billion (Rs. 6000 crore) was stacked by our well-to-do businessmen abroad in Switzerland, Lichtenstein, Jersey Island, and other tax-free havens instead of being remitted back to this country. This underground economy is, as noted earlier, is multiplying every day and spreading its tentacles in all aspects of the economy, drawing into its circles more and more people—some of them perfectly innocent. Today, for instance, one cannot purchase a house or flat in Bombay, Calcutta, Delhi, Madras or any of the large metropolitan centres without paying the house owner a part of the purchase price in this illegal money. In fact, it is openly known that if one wants to buy a dwelling unit in Bombay, one should be ready to pay 50 per cent of the price in illegal money, which enables the seller to conceal this part of the sale and aviod paying that part of the tax in the form of revenue (registration) stamps. This applies to every major article like motot cars (where the illegal payment is called the premium), second-hand air conditioners, frigidaires, etc No one who wants to purchase with wholly legitimate funds can buy any of them. The government has had schemes since 1960, giving various inducements to the holders of illegal wealth to declare it to the government and pay the tax involved—the major inducement being that no question will be asked about the source of the concealed money and a part of it, usually 50 per cent, is exempted from any tax. Currently there are three schemes to induce this illegitimate money to become legitimate and, as the response has been poor, the deadline for this declaration has been repeatedly extended This whole exercise encourages corruption, lying, deception, cheating and all the false values of life, in addition to its being unsuccessful in attracting the illegitimate funds and being very unfair to the honest tax payers

This bring us to a focus on the moral basis of life, both individually and socially. For Gandhi, the centre of life was Truth and Non-violence. We all know that these two realities, Truth and Non-violence, governed his whole life and everything he did, everything he taught and propagated, and everything that he acted on proceeded from these two basics. The proofs for him of these principles were within oneself. "There comes to us moments in life when about somethings we need no proof from without. A little voice within us tells us, 'you are on the right track, turn neither to your left nor right, but keep to the straight and narrow.' With such help we walk forward surely steadily.. Here society is a ceaseless growth, and unfoldment in terms of spirituality". For Gandhi, economics was the "outflow of spirituality" and all his economic thought, action, teaching, his economic precepts and practice were used on this moral foundation. This means that Gandhi's economic ideas and precepts cannot be practised without this moral base, which itself rests on Truth and Non-violence Today we are far away from the spirituality which Gandhi wanted to develop in us We have developed the opposite qualities of untruth and violence of all hues and forms Hence no attempt has been made in this lecture to set forth and follow Gandhi's economic advice and action in their totality, because without its moral base and its spiritual foundation, it will be an empty kernel as it to most of us today. Because of this tragic dilemma, I have tried to extract from every one of the five major facets of our economy today, the basic truth, the hard core principle that I derive from him and suggest its application to us as individuals and as society in our everyday life Can we give some thought to the basic hardcore as it applies to some of our major concerns and attempt to apply and follow them? That is my hope and prayer on this Gandhi Memorial Day

(Courtesy: Gandhi Peace Foundation, New Delhi)

Economic Problems And Prospects Of U.P.

Ajit Kumar Singh

UTTAR Pradesh presents a classic picture of an underdeveloped economy In terms of population and area U.P is indeed a large entity, bigger than many nation states The state belongs to the poverty ridden sick belt of the country along with Bihar, Madhya Pradesh and Rajasthan. In terms of many well accepted indicators of development, the economy of U P. is not only lagging behind the national economy but its relative position is also worsening

Per capita income in the State is around Rs 3000 which is about 30 per cent lower than the national average The incidence of poverty on the other hand is distinctly higher 45.3 per cent against 37 4 per cent in the country, according to the N.S S. consumption data for 1983

Urbanisation level in U P is only 19.9 per cent against the corresponding figure of 25.7 per cent in India. Agricultural workers constitute 70 7 per cent of total working force in the state as compared to the figure of 60.8 per cent in the country. The growth of state economy is hampered by inadequate infrastructural facilities. Per capita consumption of electricity is only 143 kwh in U.P. against the national average of 217 kwh. Similarly, the length of surfaced roads per lakh of population is 45.6 km. in U.P. as compared to 64.1 km in India. Again the number of allopathic hospitals and dispensaries per lakh of population is only 2 in U P. and 5 in India

The picture is even more depressing when we look at the indicators of human resource development Life expectancy is only 52 years in U P. against 58 years in the country. Infant mortality rate is 124 in U.P. as compared to 94 in India Only 55 4 per cent of males and 26 0 per cent of females are literate in the state, the corresponding figures being 63 9 per cent and 39.4 per cent for the country. The low level of human resource development is at once the reflection of the extreme backwardness of the state as well as the major cause constituting a vicious circle of the worst kind.

Past Performance

In the first twenty five years of planning, i.e , between 1951 and 1975 state income registered an increase of about 2 per cent per annum only, which was barely above the population growth Per capita income consequently remained almost stagnant. Since the mid-seventies, however, the growth rate showed a quantum jump over the preceding period. Growth rate of SDP accelerated to 3.0 per cent per annum in the seventies and further to 4 4 per cent in the eighties Thus both total and

Table 1

Sectoral Growth Rates in SDP in U.P. : 1971-89

(Per cent per annum)

	Sector	From 1971-72 to 1980-81	From 1981-82 to 1989-90
1	Primary Sector	2 0	2 5
	(i) Agriculture & Animal Husbandry	2 0	2 7
2	Secondary Sector	3 6	6 3
	(i) Manufacturing	5 0	7 6
	(a) Registered	3 2	10 6
	(b) Unregisterd	6 6	5 0
3	Tertiary Sector		
	(i) Transport, Communication & Trade	3 7	4 3
	(ii) Finance & Rural Estate	5 3	7 5
	(iii) Other Services	2 4	8 7
4	Total SDP	3 0	4 4
5	Per Capita SDP	0 7	2 3

Source: Government of U.P., Planning Department, Draft Eighth Five Year Plan (1992-97), Vol. 1, p. 28, Lucknow 1991.

per capita income in U.P have shown a sustained increase for an economic transformation of the state.

A notable feature of economic growth in the state in the recent period has been that it has been sectorally quite widespread Partitulalrly sharp jumps have taken place in the growth rates in registered manufacturing and the services sector (Table 1) This has brought about a distinct change in the structure of income. Thus the share of primary sector in SDP has declined from 60 2 per cent in 1970-71 to 41 5 per cent in 1989-90, while that of the secondary sector has gone up from 14.9 per cent to 20.5 per cent and that of the tertiary sector from 24 9 per cent to 38 0 per cent

The accompanying shift in the structure of employment was, however, much slower Thus, the proportion of agricultural workers in total work force came down from 77 4 per cent in 1971 to 74.5 per cent in 1981 and further to 72 0 per cent in 1991 The slow decline in the proportion of agricultural workers when juxtaposed against the rapid decline in the share of agricultural income has important implications for rural urban disparity as well as rural poverty. Thus the ratio of income of non-agricultural workers to that of agricultural workers has gone up from 2 4 in 1971 to 3 5 in 1991 This has meant growing proletarianization of rural labour force and has given a push to rural urban migration leading to the swelling of the ranks of workers in the urban informal sector and over-burdening of the urban civic services. The growth of 53 5 per cent in the number of agricultural labourers and the growth of 50.8 per cent observed in the number of workers in the household industry during 1981-91 are pointers to this grim reality

Table 2

Relative Shares of Agricultural and Non-Agricultural Sectors in Work Force and State Income in U.P.

(Per cent)

Year	Agricultural Sector		Non-Agricultural Sector	
	Workers	Income	Workers	Income
1971	77 4	58 4	22 6	41 6
1981	74 5	49 6	25 5	50 4
1991	72 0	40 3	28 0	59 7

Source: Census of India and State Income Statistics.

Demographic Scenario

The discussion of the development prespective for the state must take cognisance of the emerging demographic scenario. U.P. is in a stage of high growth potential and demographic transition to low growth state appears still far off. In fact population growth rate had been accelerating till recently from 1.56 per cent per annum during 1951-61 to 1.81 per cent during 1961-71 to 2.30 per cent during 1971-81. It appears the hump has been crossed now as evidenced by a decline of population growth rate to 2 24 per cent during 1981-91. But substantial population growth momentum still remains Birth rate in the state is around 37 per 1000 and the effective couple protection rate a dismal 20 per cent. According to the medium projections of the Expert Committee of Planning Commission, which in all probability are likely to be exceeded, population of U.P. will reach the figure of 16.6 crore in 2001 and 19 2 crore in 2011 Thus the state planners have to live with the fact that U.P.'s population will be expanding by about 3 crore a decade in the coming years. To provide for the basic needs of the rapidly growing population and create adequate employment opportunities for the growing labour force in the state would indeed be a stupendous task

Unemployment rates are currently quite low in U.P. According to the N.S.S. 43rd Round, male unemployment rates in rural areas of U.P. in 1987-88 were 1.8 per cent by usual status, 2.8 per cent by weekly status and 3.0 per cent by daily status. Corresponding rates for urban areas were somewhat higher—3.4 per, 4.4 per cent and 5.2 per cent respectively. However, in absolute terms the problem is by no means of small magnitude. Around 7 lakh persons according to usual status and 12 lakh persons by weekly status were unemployed in the State in 1987-88 Though the larger concentration of the unemployed is in the rural areas, the problem is becoming serious in the urban areas also. Educated unemployed form 47.4 per cent of total unemployed by usual status and the number of job seekers on live registers has more than doubled in the last decade—from 14.2 lakh in 1981 to 31.1 lakh in 1991.

Strategy

The focus of the development strategy for a state like U.P has to be on reducing poverty and unemployment. The goals of poverty reduction and employment generation are closely interwoven with each other It is only by raising the employment levels and the productivity of employment of the poor majority consisting of the landless labourers, marginal and small farmers, artisans and low paid workers in the unorganized sector that we can hope to reduce the poverty levels. The thrust areas for employment and income generation has to be agriculture, dairying, forestry, construction, rural industries and similar activities with lower capital requirements and higher labour intensity Fortunately, these are the very areas in which the state has a comparative

advantage. We have not fully exploited the potential in these areas.

Diversification of the rural economy by promoting allied agricultural activities and agro-based rural industries will go a long way in reducing pressure on land, increasing income and employment activities and reducing rural urban migration Development of small towns will play an important role in diversification of the rural hinterland This will require, among other things, considerable strengthening of infrastructure in the rural areas. Well designed employment programmes within a framework of an integrated area development plan can contribute much towards strengthening of rural infrastructure besides generating direct wage employment

Wastelands Development: Another potential area for generating employment and reducing poverty which needs special mention is that of wastelands development According to the official revenue statistics, an area of 22.2 lakh hectare, or 7.5 per cent of the geographical area of the state is classified as wastelands According to NRSA estimates nearly 43 lakh hectares are under one category of wasteland or another A large part of these wastelands can be reclaimed for different types of productive uses—forestry, wood plantations, horticulture, grazing lands, cultivation etc A massive wastelands development programme by employing the large idle manpower can yield rich dividends in terms of increased incomes and employment. At the same time it can contribute significantly to augmenting the supply of fuel wood and fodder, while helping in the important task of restoring and preserving environmental balance

HRD: Another major thrust area for developmental efforts in future that needs to be emphasized in the context of U.P.'s economy is the development of the quality of the human resource of the state. As indicated earlier, U.P. ranks very low in the indicators of human resource development, with the result that our vast masses are unable to make commensurate economic contribution Unfortunately investment in the social services has been very low in per capita terms and needs to be substantially stepped up Bolder steps are required to move in the direction of the objectives of universalisation of schooling, removal of illiteracy and health facilities for all by the end of this century Emphasis on technical and vocational education is needed to increase the employability and productivity of the people and to meet the requirements of skilled manpower for a modern and growing economy

Economic Infrastructure: Apart from the development of the social infrastructure, the development of economic infrastructure is expected to play a crucial role in the future growth of the economy The wheels of a modern economy move on a smooth and efficiently functioning infrastructure Though considerable improvement in the field has taken place over the years, economic infrastructure in the state is still woefully inadequate to meet even the present requirement of the economy The U P State Electricity Board and U P Road Transport Corporation are both incurring huge losses year after year putting a heavy load on the state budget Electricity generating per capita is still only around 100 K.W. Only 75 per cent of the villages have been electrified so far and only 40 per cent of villages are connected with all weather road. Banking facilities are inadequately developed with a credit-deposit ratio of around 45, while the rural credit system is in a very bad shape. Unless these deficiencies are removed we cannot hope for raising substantially the tempo of economic progress in the state. The issues involved here are that of raising adequate resources for infrastructural development, reducing the cost and time overruns in project implementation and raising the quality and operational efficiency of the installed infrastructure.

Agricultural Development

We may now turn to the perspective of development with regard to the agricultural and industrial sectors Agricultural sector has recorded a steady and impressive growth rate in the post green revolution period. Between 1968 and 1986 food grain output has increased at an annual rate of 3.6 per cent and food grain productivity at a rate of 3.3 per cent The process of agricultural transformation has been fairly widespread across various regions and crops though there are certain dark areas

Laudable though this progress has been one must stress that the relative level of agricultural development is still low and there is considerable technological lag yet to be covered. The yield levels (around 2 tonnes per hectare in case of wheat and 1.5 tonnes per hectare in case of rice) are way behind the levels attained in Punjab (around 3 5 tonnes per hectare for both the crops).

The major structural constraint in agricultural development is posed by the small land base of the majority of the farmers. The average size of holding is hardly 1 hectare. Moreover, three-fourth of the holdings are below 1 hectare accounting for over one-fourth of the operated area An inverse relationship between yield levels and area under marginal and small holdings has been observed in U.P The strategy of development has to aim at overcoming the handicap of the small resource base of the majority of farmers on the one hand and gradually reducing the pressure on land through rapid diversification of the economy on the other.

U.P. agriculture has now to enter a phase of greater diversification and intensification with the aim of maximising value productivity per unit of land. This requires appropriate and adequate back up in terms of reaearch, extension and infrastructure. Expansion of irrigation facilities, particularly by tapping the ground water resources for which there is still a good scope, will continue to be a key element in the process of intensification of agriculture.

Industrial Development

Finally, we may look at the perspective for the industrial sector. In the last two decades the growth of the industrial sector in U.P. has been quite impressive. The index of industrial production with base at 100 in 1970-71 stood at 419.3 in 1989-90. Income from the registered manufacturing sector jumped from 3.2 per cent per annum in the seventies to 10.6 per cent in the eighties. The number of registered factories increased by nearly 75 per cent from 3649 in 1971 to 6322 in 1985. Employment in these units more than doubled over the same period—from 3.3 lakh to 7.0 lakh Bulk of the growth in industrial output and employment has been contributed by the small scale industries whose number increased from 25,766 in 1975 to 1,06,491 in 1985 and employment in these units increased from 3.3 lakh to 9 lakh. It needs to be added, however, that a large number of these units are sick and have a high mortality rate.

Given the large market, cheap labour, traditional handicraft and skills, U.P. offers a good scope for development of light industries in the field of agro-processing, electronics, consumer goods, etc. Carefully planned packages have to be devised and vigorously implemented catering to the different segments of the industrial sector, namely, the large scale sector, the small scale sector and Khadi & Village industries sector as well as for specific industries.

The major large scale industry of the state, namely textile has been in deep crisis for long. Most of the textile mills have outdated plants and have continued to incur heavy losses inspite of nationalisation. Without modernization the industry has little hope for survival. Many of the sugar mills also have obsolete plants which need to be replaced. Apart from the revival of these two traditional industries, the state should plan to create one or two large scale industrial complexes consisting of related industries. Mathura-Agra-Aligarh region in the west and Varanasi-Mirzapur-Allahabad region in the east seem to be suitable for this purpose. Outside industrialists and NRIs should be attracted to invest in these industrial complexes.

The major advantage of U.P., however, lies in the development of the small scale and rural industries, which also have a large employment generation potential. The major issues here are technological upgradation of the industries and provision of adequate infrastructure, particularly developing credit and marketing network. The strategy should aim at dispersal of these units by developing a number of small towns as growth centres.

A big developmental challenge lies ahead of U.P. At the same time there are strong hurdles which have to be overcome. The experience of the last two decades raises hopes for the future. A certain momentum of growth has already been generated which has to be sustained and accelerated. What is needed is the creation of a developmental climate in the State by removing the psychological barriers to growth and shedding the unsavoury image that U.P. has acquired. A new work environment and work culture have to be created. Political leadership and bureaucracy have a very important role to play in this regard, which can evoke the desired public response.

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Single Window Clearance

Large mining projects will not have to go through separate environmental and forest clearance. The government is taking steps under which a single committee comprising members of the Forest Committee and invitees from Environmental Committee will examine the clearance aspect. For cluster of small mines, the Ministry of Environment and Forests will process them as a single case and the State Government would then divide them among the small lessees.

More To Increase Milk Production

The Government is adopting a multi-pronged strategy to increase milk production in the country. The estimated total production of milk during last year was 58.6 million tonnes, while the demand was 70 million tonnes. The anticipated requirement of milk by 2000 AD is 80.8 million tonnes.

Tourism In Uttaranchal: Prospects And Problems

Ritu Galiti

TOURISM today is not only an entertainment activity but it has also been recognised by the world as an industry. It has a tremendous potential for earning foreign exchange, employment, increasing tax revenue and promoting business activities like transport, fruit production, agriculture, crafts, hotel industry, entertainment and productive services.

The enormous scope for tourism evident by the fact that every year more than 1500 million people, i.e., over one third of the world's population travel away from their places of resisdence. It is estimated that on a global scale more than 750 million people are on holiday travel both within their countries and abroad.

Tourism is gaining importance not only in industrialised and developed countries of the world but also in developing countries like India. Various tourism promotional steps have resulted in continuous increase in tourism arrivals and thus in foreign exchange earnings. Income from foreign tourists in India in 1991-92 was estimated at Rs. 3,400 crore as against Rs. 1,189.10 crore recorded in 1985-86 and Rs, 2,440 crore recorded in 1990-91. According to the National Council of Applied Economical Research, tourism had generated employment for 8 lakh 54 thousand persons in 1972-73. It generated employment for nearly 64 lakh of our countrymen in 1978. These figures have increased to about nine and a half crore in 1990.

The hilly terrain of Uttar Pradesh known as Uttaranchal comprising the eight districts of Almora, Chamoli, Dehradun, Nainital, Pauri Garhwal, Pithoragarh, Tehri Garhwal and Uttarkashi is a place of attraction for the tourists not only from within the country but also from abroad. Several types of accommodations have been constructed since independence like tourist bungalows rest houses and hotels for various income groups.

It is estimated that an average of 32 per cent of the tourists who go to U.P. visit Uttaranchal every year. Regarding foreign exchange earning, it is estimated that 2 per cent of total foreign exchange earning of India and 18 per cent of total foreign exchange earning of U P., is contributed by Uttaranchal At present there are more than 500 hotels in Uttaranchal having a capacity of about 19,000 beds (including 89 government residential units with 3272 beds) providing employment to about 1,00,000 people i.e. more than 60 per cent of the employed people in this region is engaged directly or indirectly in activities connected with tourism.

In the recent years the government has renewed its efforts to boost tourism in the country especially in hilly areas, which have tremendous scope for more popular adventure sports. To promote tourism and allied activities various steps have been taken. They include giving publicity to important historic, religious and cultural places of this region, protecting and encouraging its heritage, to make available the necessary services and basic amenities and to organise various entertainment facilities.

In the recent years the tourism sector of U.P has announced some more packages for promoting tourism in this area:

1. Encouragement to Hotel Industry: The tourism sector of U.P. from the view point of providing accommodational facilities to tourists in hill area, gives appproval to hotel sites/projects, to the persons/institutions, willing to construct one and two star category hotels in private sector, after scrutinizing their applications.

2. Loan Grant Scheme: Since 1981, for the development of tourism as an industry in eight hill districts of U.P., State assistance is admissible on the completion of work either by taking loans from the nationalised banks or by spending from the private sources for projects like reconstruction and establishment of hotels and other boarding places.

For the small scale industries, prescribed loan limits will be regulated on this scheme from time to time by the industry department of the government of U P Presently this loan limit has been enhanced from Rs 50,000 to Rs, 2,50,000 Under the scheme 20 per cent of the capital investment or Rs. 50,000 whichever is less, will be admissible The amount of State assistance will be deposited in the account of the receiver in the case of completion of work by taking loan from the bank and will be directly paid to the entrepreneur on completing work by spending from the private sources

3. Luxury Tax: The collection of luxury tax on hotels has always been done by the district officers since 1980-81. From the year 1982-83, in all the districts, the regional officers of tourism department have been given the right of collection by the district officers under their supervision.

4. Registration of excursion agencies: The private institutions have been registered as excursion agents for providing accommodational, transportation and excursion facilities to the tourists The excursion agents provide sufficient facilities to the tourists for excursion etc

5. The Kailash Mansarovar Yatra: The Kailash Mansarovar Yatra is being conducted since 1981 in coordination with the Ministry of External Affairs and Government of China. For the successful organisation of this *Yatra* many departments like Public Works Department, Health Department, Police and Army provide their assistance

6. The reservation of accommodation in all the tourist bungalows of hill region of U.P. has been started by the Tourist Information Centres in coordination with Garhwal and Kumaon Mandal Vikas Nigams.

7. To promote tourism developments trekking maps have been published by Survey of India department to provide the trekkers detailed information regarding trekking.

River rafting is fast becoming popular in adventure tourism. At present, the work in this field is being done between Devprayag and Rishikesh.

8. Tourism Development of Pauri and Sheetlakhet: According to the decision taken by the government, special measures are being taken to develop Pauri and Sheetlakhet as new tourist cities. Plans are proposed for providing resisdence facilities, electricity, drinking water, conducted tours and entertainment in these cities.

Funds have also been released for organising fairs and festivals in Uttaranchal.

The U.P Government has declared a new pollution free environment and job-oriented tourism development policy, which will remain effective for the period January 1991 to December 1995. Under this policy special facilities will be given to the hill areas of the State. The encouragement packages include

Providing economic assistance through Central Finance Department and Tourism Department for receiving international financial and technological assistance for the development and establishment of new tourist cities/villages

Surveys will be made for the development of new tourist cities/villages and a detailed plan will be made based on it Various facilities like welcome centres, hotels, recreation and entertainment centres will be included in the tourist towns/villages.

To critically examine the important dicisions and implementations of new tourist centres from the state of surveys to its implementation,a committee will be formed in which Finance Secretary, Planning Secretary, Hill Development Department Secretary, Secretary Tourist Department, Chief town and country planner will be included.

In spite of all these ambitious plans and programmes, tourism in Uttaranchal has also to overcome certain basic problems as lack of necessary political and administrative will, the threat of terrorist activities, facilities for foreign exchange, exploitation of private hoteliers and providing guides with proper knowledge of cultural and historical heritage and hygienic restaurants.

With the increase in tourist inflow, the tourist places of Uttaranchal are being deprived of their natural scenic beauty because of the unbearable tourist pressure. They are becoming congested and overcrowded Mussoorie is no longer the unique beauty that attracted tourists ten years ago. It was the beauty that had earned the town decades ago the name of "Queen of Hills" This beauty is now being robbed slowly and cruelly.

The youth of the region is continuously coming into contact with the attractive life styles of the tourists No wonder most of the young people today dream of making their futures in metropolises

The irresponsible type of tourists become sources of destruction of natural resources These tourists leave behind ruined flower, beds, polluted lakes and scattered wine bottles when they leave So, proper steps should be taken to overcome these hurdles

Tourism in Uttaranchal has a long way to go What has been achieved will now can be seen as a beginning What really needed is the full fledged support of the regional people along with proper and long term plans of the government.□

The author is a freelance writer.

Employment And Economic Growth In Delhi

Dr. B.K. Sharma

ONE of the principal objectives of the Five Year Plans is the progressive reduction of unemployment in the country. The Eighth Plan also envisages acceleration of employment growth with the goal of achieving a near full employment situation in a period of about ten years at the national level. Operationally, it has been hoped that, if the rate of growth in the employment is higher as compared to growth in labour force, then not only all the new entrants into the labour force, would be absorbed in gainful employment, but the backlog of unemployment at the end of the Plan period would also be smaller than at its beginning.

To measure the extent of employment and unemployment in quantitative terms, the National Sample Survey Organisation (NSSO) has been conducting surveys on employment and unemployment under its quinquennial work programme since the 27th round (1972-73). This quinquennial surveys have provided valuable independent data on the sectoral pattern and the pace of change in employment and unemployment.

An attempt has been made in the present paper to study the employment opportunities in various sectors of economy in the National Capital Territory of Delhi, on the basis of different surveys conducted by the National Sample Survey Organisation. The employment elasticities, labour productivities in major sectors have been worked out. Moreover, the structural changes in the employment & Delhi's economy and their relationship have also been studied. Some of the statistical techniques have also been applied to study the linkages between the employment and Delhi's economy.

Sectoral Employment

To study the rate of growth in the employment under various sectors of economy during the last decade, the 32nd round (1977-78), 38th round (1983) and 43rd round (1987-88) of the NSSO have been taken into account. Table 1 shows the distribution of estimated number of persons with experience of five years years and above usually working either in principal or subsidiary capacity by major industry groups in Delhi.

The table 1 reveals that in the National Capital Territory of Delhi, the number of workers (or employees)

Table 1

Employment by Major Industry Groups

Industry Group	Industry	1977-78 (32nd Round)	1983 (38th Round)	1987-88 (43rd Round)
0	Agirculture	59600	74933	95828
		(3 5)	(3 5)	(3 5)
1	Mining & Querrying	1000	15527	--
		—	(0 7)	--
2 & 3	Manufacturing	432200	527911	707683
		(25 4)	(24 9)	(25 8)
4	Electricity Gas &	23900	61979	83826
	Water supply	(1 4)	2 9)	(3 1)
5	Construction	76300	139834	156007
		(4 5)	(6 6)	(5 7)
6	Wholesale & Retail Trade,	305800	388259	575412
	Hotels & Restaurants	(18 0)	(18 3)	(21 0)
7	Transports	137100	205549	211414
		(8 1)	(9 7)	(7 7)
(8 & 9)	Services	663800	703566	907772
		(39 1)	(33 2)	(33 2)
	Total	1699700	2117558	2737942
		(100 0)	(100 0)	(100 0)

(1977-78 & 1983—State Samples, 1987-88—Central Sample)
(Figures in parenthesis shows percentage share in total)

engaged in any gainful activity have increased from 17 lakhs in 1977-78 to 27 lakhs in 1987-88, registering an annual compound growth rate of 4.9 per cent during the last decade. About 33 per cent of the total workers in Delhi are engaged in the Service sector, followed by 25.8 per cent in manufacturing sector and 21.0 per cent in the trading activities. It shows that eighty per cent of the total workers are engaged in these three activities. The share of agriculture in the total employment remained stagnant while the share of manufacturing and trading sector have increased during the last decade.

It has also been observed that the total labour force in Delhi has increased from 19.07 lakhs in 1977-78 to 22.12 lakhs in 1983 and 28 71 in 1987-88, registering an annual compound growth rate of 4.2 per cent during the last ten years. The labour force is about 34.6 per cent of the total population of Delhi. Moreover, as per 43rd round of the NSSO, about 33 per cent of the total population are engaged in some gainful activities, of which 12 per cent are self employed, 19 per cent belong to regular salaried class and remaining two per cent are casual labourers, Further, about 2 per cent of the total population are unemployed (seeking work).

It is also pertinent to mention that, as per 1991 population census, the percentage of workers in total population of Delhi has gone down from 32.19 per cent in 1981 to 31.51 per cent in 1991. At the National level the percentage of workers, however, has increased by about one percent i.e. from 36.70 per cent in 1981 to 37.68 per cent in 1991. As regards sex-wise distribution, the percentage of male and female workers in 1991 work out to 51.61 per cent and 7.21 per cent of the total male and female population respectively. At the national level, these percentages are 51.56 per cent and 22.73 per cent for male and female workers respeceively.

Further, as per the provisional figures of the workers released by the Registrar General Office, Govt. of India, the total number of workers in Delhi have increased by 48 per cent during the last decade as compared to 26.8 per cent increase at the national level. The increase in the male and female workers works out to 45.6 per cent and 71.4 per cent respectively as compared to 21.4 per cent and 46.3 per cent at the national level. It indicates that,during the decade under review the growth in the employment of female workers was significantly higher, than the male workers.

As per the 1991 Population Census, the number of workers in Delhi are 29.68 lakhs, which is 0.9 per cent of the total workers in the country. However, Delhi's share in the total population of the country is 1.1 per cent.

It is also important to mention that due to difference in the concept of "work" adopted by the Census and the NSSO, particularly in the case of non-market activities and also in the minimum period in the year for which a person should work to be labelled as employed, the figures of 43rd round of NSSO are not strictly comparable with the census figures. However, when the final figures regarding persons seeking/available

Table 2

Percentage of total workers and Ranks Distribution

		Persons			Ranks According to percentage of Workers	
		Percentage of Workers		Percentage increase in the number of workers	1981	1991
		1981	1991	1981-81		
	Delhi	32 19	31 51	48 08	19	21
	States					
1	Andhra Pradesh	45 76	45 27	22 57	5	4
2	Arunachal Pradesh	52 63	47 46	22 49	1	3
3	Bihar	32 35	32 56	24 29	17	17
4	Goa	35 35	35 22	15 56	16	16
5	Gujarat	37 27	41 17	33 44	14	13
6	Haryana	31 63	30 83	23 09	20	24
7	Himachal Pradesh	42 38	42 27	19 09	10	10
8	Karnataka	40 24	41 83	25 43	12	11
9	Kerala	30 53	32 05	19 74	23	20
10	Madhya Pradesh	42 92	42 70	26 08	8	9
11	Maharashtra	42 56	42 84	26 27	9	8
12	Manipur	43 20	41 51	23 52	7	12
13	Meghalava	45 92	43 06	23 58	4	7
14	Mizoram	45 44	49 36	50 97	6	2
15	Nagaland	48 23	44 20	43 76	3	5
16	Orissa	38 01	37 53	18 01	13	15
17	Punjab	31 50	31 44	20 05	21	22
18	Rajasthan	36 61	38 54	34 83	15	14
19	Sikkim	48 30	53 20	41 18	2	1
20	Tamil Nadu	41 73	44 13	21 57	11	6
21	Tripura	32 27	31 36	29 93	18	23
22	Uttar Pradesh	30 72	32 27	31 74	22	19
23	West Bengal	30 17	32 37	33 68	24	18
	INDIA	36 70	37 68	26 80	–	-

Table 3

Sectoral Value Added And Employment Growth Rates

(In per cent)

	Sector	Sectoral Growth (value Added)	Employment Elasticities	Employment Growth
1	Manufacturing	8 4	0 61	5 1
2	Construction	4 4	1 68	7 4
3	Trade Hotels & Restaurants	4 3	1 51	6 5
4	Transport, Communication	9 0	0 49	4 4
5	Services	7 8	0 41	3 2
	TOTAL	6 8	0 72	4 9

Table 4

Percentage Share of Major Sectors in Value Added and Employment

	Sector	Share in Value Added		Share in Employment	
		1983	1987	1983	1987
1	Manufacturing	23 68	26 13	24 93	25 85
2	Construction	5 13	3 10	6 60	5 70
3	Trade Hotels & Restaurants	15 97	15 09	18 34	21 02
4	Transport Communication	8 21	9 19	9 71	7 72
5	Services	43 08	43 71	33 23	33 16
6	Others	3 93	2 78	7 19	6 55
	TOTAL	100 00	100 00	100 00	100 00

for work based on the 1991 census are brought out, a comparison of labour force as per 1991 census and the NSSO data could be made

Table 2 shows a comparative position of Delhi vis-a-vis other States regarding percentage of workers in total populatin during 1981 and 1991 The ranks based on the percentage of workers have also been worked out.

Table 2 reveals that the comparative position of three states viz Bihar, Goa and Himachal Pradesh remained same as far as percentage of workers in total population is concerned in 1981 and 1991. the position of percentage of workers in 10 states improved during the last decade. However, the remaining 11 States show a declining trend in the percentage of workers in total population.

The rank correlation coefficient (r = +0.92) reveals that the position of states in respect of percentage of workers in total population remained almost same or there is no major change in the percentage of workers in case of most of the States during the last decade

Employment Elasticities

It has been mentioned earlier that in Delhi, the growth rate in the employment works out to 4.9 per cent as compared to 2 59 per cent envisaged at the national level during the Eighth plan It is also worthwhile to mention that in Delhi, the population and the labour force are growing by 4.2 per cent per annum

On the basis of growth in employment and Gross State Domestic Product of Delhi, the employment elasticities in some of the major sectors of economy of Delhi have been worked out and given in Table 3.

The Table 3, reveals that the aggregate employment easlticity with respect to value added, worked out to 0.72 as compared to 0.46 which is the possible target for the Eighth Plan at the national level. The employment elasticity indicates that if Delhi's economy accelerates by one per cent the corresponding increase in the total employment would be 0 72 per cent. The highest elasticity has been found in the construction sector followed by the trade, hotels and restaurants and manufacturing sectors in Delhi. On the basis of employment elasticities and growth, the total employment in Delhi at the end of Eighth Five Year Plan will be about 38 lakhs (assuming 4.9 per cent growth rate in employment). It has been observed that more than one lakh persons are getting employment every year in the National Capital Region.

The percentage share of the five major sectors in Delhi in the total value added and total employment have also been worked out and given in Table 4.

The Table 4 highlights some of the important points regarding structural changes in Delhi's economy and its employment position. It may be seen from table 4, that the share of service sector (Finance, Insurance, Real Estate, Business Services, community, Social & personal Services) in Delhi's economy and employment is more than one third. This is followed by the manufacturing sector and the trading activities.

It is also pertinent to mention that the share of manufacturing Sector, trade and services sector increased from 82.73 per cent in 1987-88 and accordingly the share of these three sectors in the total employment has also increased from 76.50 per cent to 80.03 per cent during the corresponding period under review.

Labour Productivity

For examining the labour productivity, two characteristics, the gross added and total employment

Table 5

Labour Rproductivity in Major Sectors of Delhi's Economy

	Sector	Labour Productivity (in Rs.)		Annual Compound Growth
		1983	1987	Rate
1	Manufacturing	14881	22179	10 5
		(12673)	(14845)	(4 0)
2	Construction	14019	19477	8 6
		(10381)	(7993)	(-6 3)
3	Trade, Hotels & Restaurants	15029	19503	6 7
		(11620)	(10543)	(-2 4)
4	Transport, Communication	13650	33397	25 1
		(11286)	(17482)	(11 6)
5	Services	22579	32531	9 6
		(17302)	(19354)	(2 8)
	TOTAL	17047	25150	10 2
		(13343)	(14682)	(2 4)

(Figures in parenthesis indicates labour productivity at constant (1980-81) prices)

(workers as well as persons holding position of supervision and management) have been used Accordingly, the labour productivity in some of the key sectors of Delhi's economy have been worked out at two different points of time

It may be observed from Table 5, that the total labour productivity has increased from Rs. 17 thousands in 1983 to Rs. 25 thousands in 1987, registering a growth of 10.2 per cent at Current Prices and 2.4 per cent at Constant Prices during the period The highest per capita labour productivity has been found in the transport, communication sector, followed by service sectors (Financing, Insurance, Real Estate & Business Services, Community, Social and personal Services) and manufacturing sector respectively. However, in the construction sector, labour productivity at constant prices shows a declining trend, mainly because of the Asian Games, more construction activities were taken up in Delhi from 1980 to 1983 and the Gross State domestic Product (GSDP) at constant prices in 1983 in the construction was higher than in 1987-88. Same was the position in the hotels and restaurants sectors.

Employment and Delhi's Economy

It may be recalled that the employment elasticity in Delhi has been worked out to 0.72 per cent in the previous section, which means that employment is directly proportional to the Economic growth. To support this hypothesis, the correlation coefficient has also, been worked out between the employment and the Gross State Domestic Product in Delhi. Table 6 presents the number of workers (in lakhs) and GSDP at constant prices from 1980-81 to 1989-90.

Table 6

Number of Workers and GSDP

Years	Employment (in Lakhs) (Y)	GSDP (Rs in Crores) (X)
1980-81	19 40	2542
1981-82	20 27	2728
1982-83	21 18	2912
1983-84	22 13	2826
1984-85	23 13	2909
1985-86	24 17	3451
1986-87	25 25	3717
1987-88	27.38	4020
1988-89	28 72	4372
1989-90	30 13	4742

The correlation coefficient and coefficient of determination have been worked out to study the relationship between the employment and economy and the impact on employment by the growth in Delhi's economy For the purpose of estimating/forcasting, the regression equation of employment (Y) on GSDP (X) has also been worked out.

The correlation coefficient (r) works out to 0.98, indicates that, there is very high degree of relationship between employment and GSDP in Delhi. The coefficient of determination reveals that the 96 per cent of the variation in employment is due to the economic growth in Delhi and the remaining four per cent is due to some other factors. The regression equation of employment (Y) on GSDP (X) has been estimated as y = 8 13 + 0047 x

It has been observed that in the GSDP, the growth rate in real terms is 7 2 per cent (From 1980-81 to 1989-90) Assuming the same trend will prevail in Delhi's economy during the Eighth Plan, then the GSDP (at constant prices) at the terminal year of the Eighth plan (1996-97) will be about Rs 7,600 crores and accordingly, the employment in Delhi has been worked out to 43 lakhs in 1996-97 with the help of regression equation

It is also important to mention that, when Delhi's economy will grow at 7 2 per cent per annum then the employment will annually increase by 5 2 per cent, because the employment elasticity is 0 72 per cent. Further, in case of Delhi, growth in employment is higher than the growth in labour force based on the NSSO data. Therefore, it can be safely assumed that the full employment situation may be obtained by the end of Eighth Plan, provided the migration to Delhi from other States/U.T. for the sake of employment may be checked. □

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Jojoba: A Wonderful Oil Shrub For Arid Lands

Senthilkumar P.

JOJOBA (Pronounced ho-ho-ba) is name that is a increasingly becoming common in India. Botanically known as *Simmondsia chinensis*, it is an oil bearing shrub. It is a native of Sonoran desert region of North America. It promises to be a boon oil crop for the arid and Semi-arid regions of India.

Jojoba is not a new plant to India. In the late seventies, about 1500 seedlings were planted by the Central Salt and Marine Chemicals Research Institute at Bhavnagar in Gujarat and also at Bahranpur in Orissa. This was the first organised cultivation of the plant in the country.

Australia, Brazil, Costa Rica, Israel, Mexico, South Africa and few other African countries have sizable area under jojoba cultivation.

Worldwide attention on this wonder crop increased when few western countries placed sperm whale on the endangered list and banned the importation of sperm whale oil. Jojoba oil is remarkably similar to sperm whale oil and is purer than commercial substitutes. The oil is said to be unique in the plant kingdom. Strictly speaking, the product is a high quality liquid wax rather than oil.

Cultivation

Jojoba is an evergreen, perennial dioecious shrub (Male and female plants are separate). Normally it grows to a height of 1-2 metre. It can tolerate extremely high (50°C) as well as extremely low temperature (-5°C). Its life span varies from 40-200 years. Plants are propagated by direct sowing, cutting or using tissue cultured plantlets. The latter methods help establish plantations with desirable male female plant ratio.

As the plants are robust, tolerant and can withstand desert heat without requiring much water or shade it is well suited for the arid regions and saline patches of Rajasthan and Gujarat. It can also be cultivated without much effort in vast tracts of semi arid region of our country receiving 400-800 mm of annual rainfall. Desertification which is a growing problem in arid zones can also be overcome by encouraging jojoba cultivation.

Every fruit contains one to three seeds, and each seed has 50 per cent oil which has exceptional commercial value and use. Though significant seed yield can be expected only after 4-5 years after sowing, intercropping with sorghum, bajra or barley can be done during the first few years to increase the revenue especially in small plantations. Under favourable conditions the seed yield can reach upto 3 kg/plant and more than 1000 kg/ha per year by fifteenth year. Exracting the oil is a simple process done with standard mechanical presses used for groundnut. After detoxification of jojoba can be used as animal feed. Since the seeds nor oil are highly perishable, distance from the market should not seriously limit the location of plantation.

More than 90 per cent of the jojoba oil is at present used by the cosmetic industry worldwide. But it can also be used in the preparation of high quality lubricants, anti-foam agents, pharmaceutical creams, candles, polishes, plastics modifiers, crayons, varnishes, low calorie cooking oil, adhesives etc.

In the international market the jojoba seeds fetch about 7,500 US dollars per tonne, while jojoba oil sells at more than twice the amount. International demand for jojoba oil far exceeds supply. With the reduction of taxes on cosmetics in the union budget, the domestic cosmetics industry is bound to grow which will create demand for the oil in the domestic market as well.

Not only jojoba has the ability to bring in valuable foreign exchange but can change the socio-economic conditions of thousands of farmers taking up jojoba cultivation. □

The author is a Free-lance Journalist.



My life is my message

- Mahatma Gandhi

On the solemn occasion of Gandhi Jayanti (October 2, 1993), let us renew our commitment to follow the path of truth, non-violence, universal brotherhood, equality and progress shown by Bapu.

davp 93/367

Dheki Pump: A New Step In Irrigation

H.C. Sarmah

AGRICULTURE is the mainstay of about 80 per cent of the total population of India and application of new technologies in this field is of great importance In agriculture, priority considerations are in the spheres of tools and implements, irrigation, fertiliser, post-harvest technology including storage facilities and transport and service equipment Each of them is important and new technology or improved technology has already been in use in rural areas. All these technology and services can be easily made and are less costly The case regarding irrigation is different. It is costlier. Tube well, shallow tube well, deep tube well, lift irrigation scheme, flow irrigation scheme, etc. are very costly and beyond reach of the masses Therefore, there is a great need for a technology in this sphere which is rural based, easily adoptable by people and above all, less costly

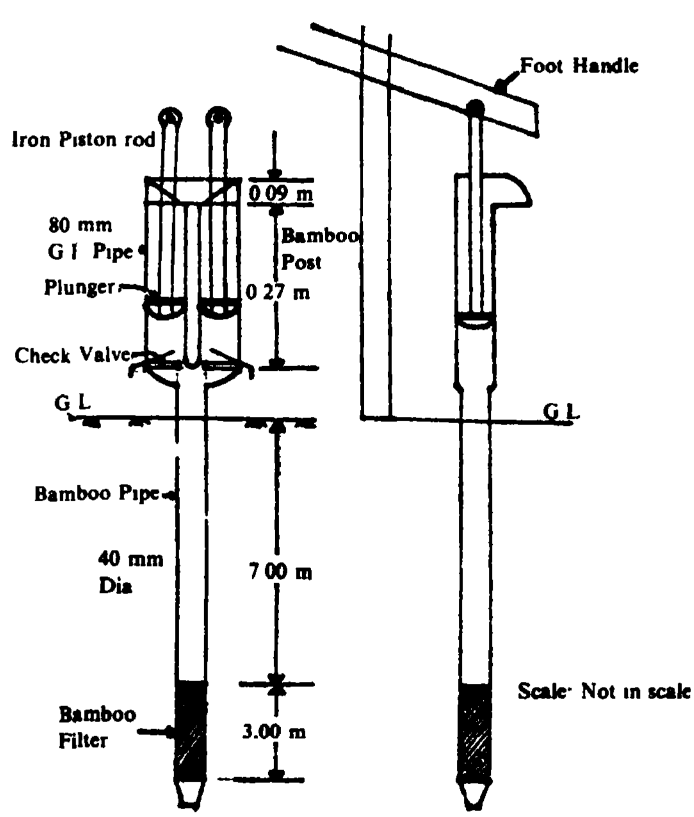
Such a technology has been developed by the farmers of South Salmara—Mankachar Sub-Division of Dhubri District of Assam The technology that has been invented by farmers themselves is known as "Dheki Pump" Dheki means pedal The technology is very simple. One can make Dheki Pump with locally available materials. three bamboo sticks of 1½" diametre and around 15 to 20 feet in length, around three metres of perforated nylon cloth, two pieces of bamboo wood around three feet length and 1½" dia G.I. pipe, two check valves, two iron piston rods and two plungers

The G.I. pipes have to be welded together keeping the hole of both the pipes intact. The pipes have to be welded so that there is only one hole at the bottom of the pipe and a bamboo can be inserted into the hole and water can come to both the chambers of G.I. pipe through the gap left after welding die. Two check valves have to be placed at the bottom of the G.I. pipe chambers to act as a check to one another. Two iron piston rods and plungers have to be fixed in each chamber of the G.I. pipe. The iron piston rods, are connected to two bamboo pedal that can be manually operated.

The bamboo which is inserted inside have to be joined one above the other by bicycle tube, cloth, etc., so that there would be no leakage. The bottom side of the bamboo placed at rear end may be used as a filter. The bamboo filter is made by making numerous holes in the bamboo and then placing perforated nylon cloth on it.

The boring is to be done with the G.I pipe for tube wells. After boring

Exhibit-I



Drawing of a Dheki Pump

(Continued on page 30)

Ganga Action Plan Graduates To Second Phase

AFTER seven years, working along the longest river of the country, the Ganga Action Plan enters its second phase to cover the other polluted rivers. As a first step in this direction, a scheme of pollution abatement of Yamuna and Gomati rivers has been formulated. The scheme aims at improving the water quality of these rivers to the designated-best-use class in the different polluted stretches.

Unlike the Ganga Action Plan, which is fully funded by the Central Government, the second phase of the Ganga Action Plan would be taken up as centrally sponsored schemes with equal contribution from the Central and the State Governments concerned. The cost of operation and maintenance will be borne fully by the respective States. The estimated cost of pollution abatement works under the Yamuna and Gomati Action Plan is Rs 421 crore.

The river Yamuna—also called Kalindi in some reaches, originated from the Yamnotri Glacier near Bandar Punch in the Mussoorie range of the Lower Himalayas at an elevation of about 6387 m above mean sea level in the Uttar Kashi district of Uttar Pradesh. In the first 170 kms stretch, the tributaries Rishi Ganga, Unta, Hanuman Ganga, Tons and Giri join the river and the combined stream then forces its way through the Shivalik Range of hills and emerge in the plains at Tajewala in Haryana.

From Tajewala, the river sluggishly meanders to its confluence with the Ganga at Allahabad after flowing through a distance of about 1200 kms. The river Yamuna from its origin to the confluence point at Allahabad thus traverses a distance of 1376 kms. The main tributaries joining the segment between Tajewala and Allahabad include the Hindon from the right and the Chambal, the Sind, the Betwa and the Ken from the left.

The catchment of the Yamuna river system covers parts of Uttar Pradesh, Himachal Pradesh, Haryana, Rajasthan, Madhya Pradesh and the entire Delhi. The total catchment area of Yamuna is 3,45,848 sq. km.

Critical Stretches

The river quality in the first segment is good as compared to the rest of the river. At Wazirabad, very little or no water is allowed to flow through the barrage in dry weather, thus deteriorating the quality of river. Since a major outfall-Najafgarh drain-joint the river, in Delhi the Yamuna, contains mostly sewage instead of fresh water.

The river, however, regains its flow partly through ground water recharge but becomes highly *eutrophicated* due to excessive nutrient release thus giving way to algal blooms. Also addition of waste waters from Mathura and Agra cause septic conditions. It is only after the Chambal joins, that the river regains its quality. After the confluence of Chambal because of dilution, the portion of the river is known as Dilution Segment.

Under the second phase 18 towns in Haryana, Uttar Pradesh and Delhi would be covered. Seventeen drains have been identified which discharge into Yamuna. The highest addition of waste load occurs in Delhi through its 15 drains. The critical stretch of the river is Wazirabad to Etawah.

Yamuna Action Plan would undertake—interception and diversion of waste water, sewage treatment plants (STPs), low cost sanitation, improved wood crematoria, river front facilities and relevant improvements, afforestation along the river and in other identified stretches, public participation and other schemes for biological conservation of aquatic species.

Gap Model

Almost all the works proposed to be taken up for the pollution abatement of the river Yamuna are similar to the works already taken up under the Ganga Action Plan (GAP). Emphasis has been laid on decentralisation of sewage system for reducing the cost involved and the extent of area required at a particular place. This approach would be useful to adopt modular approach which is necessary in view of the population growth.

While many SPTs will be based on the established technology as activated sludge process, trickling filter and oxidation ponds, emphasis will be laid on low cost treatment technologies. Many such technologies—Upflow Anaerobic Sludge Blanket Technology (UASB), use of raw sewage for afforestation based on the Karnal technology and use of aqua-

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Steady Step Up In Rubber Production

INDIA is the fourth largest producer of natural rubber in the world and 75 per cent of its comsumption comes from natural rubber only. Production and consumption of natural rubber have been growing steadily in the country. While India produced 3,95,000 tonnes of natural rubber during 1992-93, its comsumption was approximately 4,14,000 tonnes compared to the production of 3,66,745 tonnes and consumption of 3,90,000 tonnes in 1991-92. It is estimated that natural rubber production during the current year will be 4,40,000 tonnes. There has been a steady increase in the productivity of rubber too. From an average yield of 770 kg per hectare of tapped area in 1981-82 the average yield in 1992-93 was 1,150 kg per hectare

The rubber plantation in India has a modest beginning in the first decade of this century in Kerala. From a production level of about 15,000 tonnes in 1948, natural rubber production had a phenomenal rise to 3,95,000 in 1992-93. Though the traditional region in Kerala and Tamil Nadu accounts for over 97 per cent of the production, other non-traditional areas like Karnataka, Tripura, Assam, Goa and Andaman and Nicobar Islands are also making steady efforts to increase the area and production of rubber.

New Strategy

The rubber industry in India employing over 3.2 lakh people has got tremendous export potential. In 1992-93, India's exports of rubber goods amounted to Rs. 672 crore. Despite its vital role in the country's economy, the industry is not free from the problem of availability of the basic raw material—natural rubber.

Wide ranging activities have, therefore, been undertaken by the Rubber Board to increase the production of natural rubber The thrust is now on the modernisation of existing plantations in the traditional areas of Kerala and Tamil Nadu and on expansion of area under cultivation in the non-traditional areas like North Eastern Region, Karnataka, Orissa, Goa and Andaman and Nicobar Islands.

The Board has evolved a three-pronged strategy for the Eighth Plan period It includes expansion of areas under rubber by new planting in 50,000 hectares and replanting of old and new yielding areas with modern high yielding planting materials in 42,000 hectares. Emphasis is given on raising productivity of existing plantations by popularising modern technology in plant protection, manuring, harvesting and crop processing.

By the turn of the century, the yield per hectare of tapable area is estimated to go up to 1525 kg and the total production to 6,75,000 tonnes. This is sought to be achieved through improved agro-management and scientific techniques of tapping, research and extension in the rubber holdings and estates. This would gradually obviate the need for import and meet the increasing demand of the domestic industry.

Moreover, under the rubber plantation development scheme, financial and technical assistance for new planting and replanting is made available. The scheme is to be implemented in a five year period synchronising with the Eighth Plan period.

Incentives

Under the scheme, a capital subsidy of Rs. 5000 per hectare to small holders owning upto 5 hectares in traditional areas has been provided Additional assistance for the use of high quality polybagged plants, upto a maximum of Rs 2700 per hectare to general categories of growers and Rs. 3600 per hectare to Scheduled Caste and Scheduled Tribe categories of growers is also being extended.

Long term loan assistance is provided under the scheme to the extent of the cost of planting and maintenance upto maturity from banks operating under the National Bank for Agriculture and Rural Development's (NABARD) refinancing programme. Three per cent subsidy on interest of such loans availed by the small growers in the traditional areas and all growers in the non-traditional areas is also being paid by the Board.

The planting grant given by the Rubber Board is proposed to be raised from the existing Rs.5000 per hectare to Rs. 8000 per hectare for new planting and replanting. The step has been taken in view of the steep escalation of development cost to Rs. 40,000 per hectare now from

Rs. 15,000 per hectare in 1980 when the existing assistance was fixed. The raise would be carried out in seven instalments. The elegibility condition would also be modified in favour of small and marginal farmers.

It has been proposed to continue price concessions on fertilisers and fungicides varying from 11 per cent to 5 per cent declining over the course of the project period. Free extension support at all stages of planting, maintenance and production is to be continued, while insurance protection would be made obligatory for the gestation period of seven years.

Fair Return

For making natural rubber available to the consumers at a fair price and also to ensure a reasonable return to the rubber growers, a Buffer Stocking Scheme was introduced in March, 1986. The scheme provides for a bench mark price to be fixed based on the estimated cost of cultivation. It takes into account the price fluctuation of rubber during a clear lean season and a flush season.

The Government revised the bench mark price for rubber at Rs 23,450 per tonne for the RMA-4 grade and Rs. 22,950 per tonne for the RMA-5 grade in January 1993 The bench mark price fixed earlier in 1991 was Rs. 21,450 per tonne for RMA-4 grade and Rs. 20,950 per tonne for RMA-5 grade.

The Government is keeping a close watch on the rubber prices. Procurement agencies like the State Trading Corporatin (STC) are in a state of readiness to launch the procurement operations as and when the need arises. □

(Continued from page 26)

culture—have been developed as a result of the R&D effort in GAP phase I.

Special emphasis is being given to the resource recovery from the effluent of these STPs to minimise the cost on operation and maintenance. Revenue would be generated by popularising use of treated sewage for irrigation and aquaculture, sale of sludge for manure and electricity generation using biogas for producing electricity and domestic fuel.

A Research Committee of eminent scientists would assist in promotion of research and technology application. The emphasis of this committee would be to promote research activities in the pollution monitoring, water recycling and resource recovery and impact analysis, development and adaptation of new technologies.

Participatory Programme

Throwing of unburnt and partly burnt bodies into the river is a cause of pollution at certain locations. To deal with the problem, improved wood crematoria and electric crematoria would be constructed at suitable places.

In many action plan towns, the sewage network is not extensive. Efforts would be made to provide low cost sanitation facilities which would involve constitution of public toilet complexes, conversion of dry latrines into pour flush laterines Sewage utilisation for growing the trees would be encouraged using Karnal Technology to the maximum extent. Extensive plantation of identified species with the help of state forest departments and local expertise will be undertaken along the river banks and other degraded waste lands identified for the purpose of arresting soil erosion and improving the environment in general.

To inculcate environment friendly behaviour in people and seek their active involvement in this gigantic pollution control programme a massive multi-media campaign is being organised. Efforts are being made for direct public participation in some types of work proposed under the action plan.

School and college children who can do a lot to spread this awareness would be involved in river water quality monitoring by giving them specially designed kits. Essay, debates and on the spot painting and other such competitions would be organised for generating awareness about the importance of river quality protection Voluntary organisations and elected representatives of the Yamuna Action Plan towns who have interest in environmental programmes, will be involved in various programmes of plantation, improvement of river front facilities, exhibitions, padyatras etc. making it a true participatory programme of pollution control □

Book Review

CREATIVE LEADERSHIP: The People Oriented Task Approach: By Rustam S. Davar; UBS Publishers' Distributers Ltd. New Delhi; 264 pp; Rs. 250.

What is leadership? It is commonly understood as the ability to lead or direct. To many, leadership consists of certain qualities or attributes, inherent or acquired behaviour pattern which helps the leader to bring out an orientation in the attitude of his followers congenial to his own organisational philosophy. Courage, will-power, judgement, flexibility, knowledge, integrity, pursuasiveness and decisiveness are some of the qualities which have been attributed to successful leadership To these can be added intelligence, technical mastery, enthusiasm and many other qualities. But it is not essential that all such qualities should be needed before any person can be labelled as a successful leader

There are political leaders, business leaders, military leaders, technical leaders etc. In politics there have been successful leaders like Winston Churchil, Franklin Roosevelt and Mahatma Gandhi Field Marshal Sam Maneckshaw is regarded as the top military leader with his qualities of high assertiveness, concern for people, decisiveness and humanism. Lee Iacocca proved an effective leader in business by bringing the well known Chrysler Corporation out of dfficulties and taking it to a level which far exceeded the level of other organisations. The qualities that helped him are: visualisation, institutionalisation, motivation and assertiveness.

While it is an indisputable fact that qualities of leadership are essential for the success of an organisation, the nature of such qualities vary from job to job and differ in different circumstances. But, still there are certain qualities or attributes, inherent or acquired, which are required anywhere. According to Rustom S Davar, "Leadership is not a constant requiring fixed abilities or leadership behaviour pattern. It depends on (a) the leader's philosophy or his own value system, (b) the type of his followers and (c) the situations in which it is to be exercised". A number of leadership qualities can be acquired or improved upon.

The book under review is a welcome attempt in elucidating the subject. It is in two parts: In the first part, captioned 'Leadership-3-D Model, it represents the author's 3-D Model indicating different types of leadership style which are thrown up by different combinations to the extent of emphasis on 3 variables: 'task, orientation, 'people' orientation and 'assertiveness'. Part II is concerned with the 'Leadership at the Top' which analyses separately the leadership styles of top leaders such as Field Marshal Maneckshaw, Lee Iacocca, the marketing genius Akio Morita, Padma Bhusan Russi Mody, K.K. Birla, Shashikant Garware, Rahul Bajaj, Kapal Mehra and Dhirubhai Ambani.

In the final analysis, the book makes an interesting reading and should be helpful to anyone who wants to develop leadership, whether he is a manager, a chief executive, a politician, a Rotarian or a person in social organisation or is following an activity where the person is required to achieve certain result with the help of others, whether they be his subordinates or equals.

S.P. Malik

INDIAN SYSTEMS OF MEDICINE AND HOMOEOPATHY IN INDIA: published by Ministry of Health and Family Welfare (Planning and Evaluation Cell), Government of India, New Delhi; pp. 228.

This volume is a directory of *Deshi Chikitsa*, including Homoeopathy. Deshi Chikitsa for Indigenous Systems of Medicine includes Ayurveda, Unani Systems of Medicine, Naturopathy and Yoga, Amchi System of Medicine and Homoeopathy. The volume is divided into three parts. A, B and C with ten profiles containing tables on. (i) Medicine Care facility; (ii) Medical Power; (iii) Medical Education Undergraduate; (iv) Post-Graduate Education; (v) Licensed Pharmacies ISM & H; (vi) Population and Vital Statistics; (vii) Outlay and Expenditure; (viii) Para Medical Courses; (ix) Research Organisations; and (x) State Council and Board Officers Incharge and finally population census 1991 containing provisional figures.

In the beginning, the volume briefly introduces the ISM & H. The description is historical and includes recent scientific branch of Ayurveda. The four basic concepts of Ayurveda introduced — *Panchamahabhutus, Tridoshas, Dhalus, Malas* have been presented nicely, though briefly. The description of Ayurveda containing its present status in India is very useful.

Similarly, Unani system of Medicine, Siddha System of Medicine, Homoeopathy, Naturopathy, Yoga, and Amchi System of Medicine have been presented in brief.

Administrative set-up of Indian System of Medicine and Homoeopathy has been presented state-wise as on 31.3.1989. The organisational set-up in the state has been presented in tables of each state and of centrally administered areas.

Section 1 to 5 present detailed description of Indian systems of Medicine. The statewise information has been arranged alphabetically. Details about teaching facilities and number of seats available, etc. have also been given. Section 6 presents useful tables about population and vital statistics. In section 7, outlay and expenditure has been given. The volume is useful for the common citizens interested in Indian systems of medicine and Homoeopathy and research oragnisations.

Dr. Devendra Thakur

CORPORATE PUBLIC RELATIONS: Prof. By K.R. BALAN; Sterling Publishers Private Limited, L-10, Green Park Extension, New Delhi-110016; Pp-223 + XIV; Price Rs. 70.

Management Information System *is* like a two-way traffic. In any society, the organisation whether public, private or voluntary, either small or big, always tries to provide some information about its services or products and seeks to get feedback. It is essential for development of services or products. Public Relations job does this work in practice. In modern days Public Relations has established itself as an essential component for proper functioning of any organisation.

Though the book is based on corporate studies, it is applicable to any organisation. Let us consider some illustrations. Prof. Balan explains the relationship among the corporate body and shareholders, foreign investors, customers, suppliers, public order, state machinery, social and public welfare, competitors, fellow workers etc. Further, Prof. Balan has shown the inter action of the corporate body with trade unions, society, environment, general economic policy of the state, creditors' interest, international economy etc.

The book starts with the history of development of Corporate Public Relations. Further in other chapters the policy and strategy of Public Relations, modus operandi of Public Relations, economics of Public Relations etc are dealt in detail.

Amitabha Ray

(Continued from page 25)

Exhibit-II

Estimate for Installation of (Locally Made) Bamboo Dheki Pump Boring up to 10 M Depth.

Estimate based on of Sri Habibar Rahman, Cultivator, Kuchnimara Village, As per Directive.

(A) Cost of Materials

		Rs
1	2 Nos of Bamboo for pipe & Filter @ Rs 20/- each	40 00
2	Perforated nylon cloth wrapping arround bamboo filter– 3 10 m @ Rs 5 00/ m	17 00
3	80 mm G I pipe fitted above bamboo pipe 0 36 m length x 2 = 0 72 m @ Rs 129 00/ m	93 00
4	(80x40x80) mm Special Tee @ Rs 120 00 each	120 00
5	Check Value 2 Nos @ Rs 25 00/each	50 00
6	Iron Piston Rod 2 Nos @ Rs 15 00/each	30 00
7	Planger 2 Nos @ Rs 20 00/each	40 00
8	Bamboo post & Dheki, @ Rs 20 00/each	20 00
9	Welding Cost L.S	20 00
(B)	**Cost of Boring:**	
1	Cost of boring upto 10.00 m, @ Rs 20 00/ m	200 00
2	Cost of Stone Chips L S	50 00
3	Labour Charge for making bamboo filter, fitting etc L S	20 00
		700 00

(Rupees Seven Hundred) only

around 30 feet or so, depending upon water level, the bamboo pipe has to be lowered. Then the pump made out of G.I. pipe, iron piston rod, plunger, check valve, etc. have to be fixed to the bamboo pipe. Two bamboo stubs of 3/4 feet length can be used as pedals where both the piston rods are fixed. When a person stands on the pedal and uses his feet one after the other for pumping, the plunger will start working as the hand tube well and check valve of one side where pressure has been applied by foot will go up and water from bamboo pipe comes into that chamber and ultimately to the field, while the other chamber will be closed by the check valve.

The total expenditure of the Dheki Pump will be around Rs 700.00 at 1993 prices. The Dheki Pump is useful for at least 10 years or so unless water level goes down. A Dheki Pump covers upto a maximum of 3*bighas* of land (8640 sq.ft.) if it is operated about 4 hours a day.

It is hoped that this technology will help the farmers a lot as it is easily adaptable, easy to operate as well as less costly than other modes of irrigation □

The author is Sr. Planning Officer, Decentralised Planning Division, Assam.

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State Of The Economy

THE Indian economy at present is in the midst of wide-ranging structural reforms systematically initiated since the middle of 1991 to place it on a high sustained growth path and to integrate it with the global economy The desired results of this economic transformation in full measure will be realised only when the structural reforms process is well underway and the functional groups have adjusted themselves to the change However, the results achieved so far have been reassuring In the mean time, the very fact of smooth implementation of economic reforms in a number of sectors given the varietal problems and their dimensions, is in itself a significant achievement, as it establishes their workability

During 1991-92, the Government's major effort was devoted to managing an unprecedented economic crisis and the major policy initiatives were aimed primarily at bringing about economic stability and restoring international confidence in our economy With the significant success achieved in these areas, new initiatives were taken during 1992-93 and in the current year broadening and deepening the process of economic reforms The economy is now poised to grow further after the downswing of 1991-92 and moderate overall growth registered in 1992-93 Inflation has come down very considerably, a spectacular increase in exports is in evidence in the first four months (April-July) of 1993-94 and balance of payments situation has improved The growth in GDP which was around 1.2 per cent in the year 1991-92, is estimated to be over 4 per cent in 1992-93 and a significant improvement in the overall growth rate of the economy may be expected in the current year.

Following are the salient features of the current economic situation

_A good kharif crop was harvested in 1992 following a near normal South-West monsoon The total foodgrains production for 1992-93 is estimated at 181 2 million tonnes. The wheat production is estimated to be at 57 0 million tonnes exceeding the previous year's level of 55 1 million tonnes. There was a bumper production of oilseeds in 1992-93 (20 6 million tonnes as compared to 18.3 million tonnes in the year previous to it) A near normal rainfall in the current monsoon season, except for a prolonged dry-spell in some parts of the country and floods in parts of Punjab, promises yet another year of good kharif crop (last year's estimated level 102 million tonnes) Recent late rains have also brightened the prospects of rabi crop

_There has been a significant improvement in stocks of foodgrains On September 1, 1993 the total stocks stood at 25 1 million tonnes, about 9 million tonnes higher than the last year's level, and against the minimum buffer stock norm of 22 3 million tonnes on 1st July and 16.6 million tonnes on 1st October This is indicative of a much enhanced capacity to manage the food economy.

An improvement in industrial production is discernible During 1992-93, the industrial production registered a growth of 1 4 per cent as against a stagnant level in 1991-92. But for the fall in production in January, February and March, 1993, among other things, following the Ayodhya incident, the industrial performance during 1992-93 would have been much better. However, in the current year the decline in production is arrested and in April, 1993, the fall in production was only 1 per cent compared to () 4 2 per cent in January, (_) 6 4 per cent in February and (_) 2 4 per cent in March In May 1993, the overall Index of Industrial Production went up by 3 9 per cent and of Manufacturing by 5 per cent A much improved performance in some of the industries is noticeable in recent months, such as, electricity, chemical products, rubber products, beverages and wood & wood products Policy initiatives in the form of reduction in rates of commodity taxation and in interest rates, together with reform of capital market and changes in industrial policy, are expected to improve the performance of this sector With the exception of crude and oil products, the infrastructure sector has been doing very well in recent months

_The foreign exchange reserves, excluding gold and SDRs, as on September 1, 1993, stood at $ 7.2 billion as compared to $ 1 12 billion in June, 1991

Since February, 1993, on a month by month basis, an improvement in export performance is noticed. Exports in dollar terms increased sharply by 27.2 per cent during April-July 1993-94 as against 2 0 per cent during this period in 1992-93

_imports decreased by 2.7 per cent during April-July 1993-94 (in dollar terms)

(Contd. on page 9)

Reforms In The Financial Sector And The Task Ahead

BANKING system plays a crucial role in economic development. An efficient, competitive vibrant and innovative banking environment stimulates economic growth by mobilising domestic savings and by efficiently allocating funds to productive sectors. In addition, as the volume of financial transactions increases with economic development, the need for financial services also expands. Failure to meet these needs can destabilise economic activity in other sectors.

A number of reform initiatives have been taken to remove or minimise the distortions impinging upon efficient and profitable functioning of banks. These include the following:

a) Reduction in SLR and CRR whereby the lending capacity of the banks has been substantially augmented. This process will be continued further lowering the average SLR to 25 per cent over the next 3 years. This will greatly increase the volume of bank funds available for industry, trade and agriculture.

b) The regulated interest rate structure is being rationalised and simplified. Banks' deposit rates have been deregulated subject to a ceiling rate. The number of lending rates has been reduced from six, prevailing two years ago to three rates today, with two concessional rates and a floor rate for all advances above Rs. 2 lakh.

c) Movement of interest yield on Government securities towards market related rates.

d) Liberalisation of branch licensing policy.

e) New accounting and prudential norms related to income recognition, provisioning and capital adequacy, in line with accepted international standards, have been implemented in the course of 1992-93. This will ensure that the books of the banks will reflect their true financial position which is a prerequisite for effective monitoring and improving performance.

f) Legislative framework for setting up of dedicated tribunals for expeditious upjudication and recovery of debts of banks/financial institutions.

g) The implementation of the new norms will lead to a considerable impairment of capital in some of the nationalised banks and these banks will have to be recapitalised. The Government has made a total provision of Rs. 5,700 crore in the Budget for 1993-94 for this recapitalisation. Simultaneously, steps are being taken to ensure that management systems will be revamped to ensure that similar problems do not arise in future.

h) In order to minimise the burden on the Budget of recapitalising the banks, Finance Minister in his 1993-94 Budget Speech announced that the State Bank of India and those of the nationalised banks which are in a position to do so, will be allowed to approach the capital markets directly to mobilise equity funds from the public. The management of the public sector banks will continue to remain in the control of the Government which will retain 51 per cent of equity.

i) Transparent guidelines for entry of new private sector banks have been stipulated.

j) The supervisory system of the Reserve Bank of India is being strengthened with the estalishment of a new Board for Financial Bank Supervision within the RBI under the exclusive charge of a Deputy Governor.

Similar reforms have been initiated in the capital market. We have moved away from direct governmental control over the volume and pricing of issues to a system where these aspects are determined by the market but the functioning of the market itself is subjected to regulation by an independent authority such as the Securities and Exchange Board of India (SEBI). SEBI, which has been in operation since 1988 as a non-statutory body, was given statutory powers in February, 1992. The office of Controller of Capital Issues was abolished in May, 1992. Over the past year, a number of steps have been taken to improve the functioning of the capital markets.

* SEBI has prepared comprehensive

rules and regulations governing various aspects of the stock market and intermediaries operating therein with a view to improving trading practices, rules for disclosure, and other measures for investor protection.

* Private Sector Mutual Funds have been allowed to operate subject to SEBI rules and regulations.
* A National Stock Exchange is being set up to serve as a model exchange providing nation-wide screen-based trading and electronic clearing and settlement system
* Foreign Institutional Investors, such as pension funds, mutual funds, etc. have been allowed to invest in the capital market subject to SEBI guidelines.

The measures which need to be taken over the next 3 years and which have already been indicated in the discussion paper titled "ECONOMIC REFORMS_TWO YEARS AFTER AND TASK AEAD" are as follows·

i) A complete ban on generalised loan waivers

ii) Institution of speedy and effective loan recovery process, so that the public savings do not disappear, but can be recycled to new producers and borrowers who repay their loans.

iii) A phased reduction in the Statutory Liquidity Ratio to 25 per cent and in the Cash Reserve Ratio to 10 per cent. Both these measures will increase the banks' lending potential to the commercial sector

iv) Phasing out of ceilings and floors on bank deposit and lending rates, respectively, except for the continuation of a single concessional lending rate.

v) Careful targeting of concessional lending to the really needy.

vi) Creating an environment in which banks will have better incentives to lend more to agriculture, small industry and other priority sectors. This may also involve revamping of agricultural credit institutions.

vii) Strengthening institutions and procedures for bank supervision.

These measures should vastly improve the environment in which banks function and allow them to make adequate profits while maintaining the health of their newly constituted balance sheets. Those that remain weak and insolvent will merit special attention

Furthermore, subject to prudential norms, restrictive regulations which limit competition (such as, the consortium approach) will need to be modified, if not eliminated, so as to increase competition in providing service to the public. The competition from entry of new private banks, including joint ventures with foreign banks, will in time result in new innovative public services The new prudential norms, a more competitive environment and broadening ownership of public sector banks will help ensure that their newly reconstituted financial health is not fritered away.

Given the past and projected explosion in the number of transactions handled by banks, it is impossible to provide timely service and to keep track of all the financial flows with a view to identifying irregularities, without widespread computerization. The public interest must take predominance over the unfounded fears of bank employees, though their legitimate interests must be protected. Public consumer bodies should mobilise support for reforms aimed at providing better banking, insurance and other financial service to the public.

The ultimate responsibility for achieving the intended results of these strategies and to provide impetus to growth process lies with the bank managements. Measures are also under way for managerial strengthening.

Appropriate prudential norms and regulatory practices are also just as necessary in insurance as in banking. It is recognised that the provision of General and Life Insurance needs to be more efficient and effective and greater competition can help achieve this objective These issues are being examined by a High Powered Committee, headed by Shri R N Molhotra, former Governor of the Reserve Bank of India.

Our overall strategy for broader financial sector reforms is to make a wide choice of instruments accessible to the public and to producers. This will better match the demands of savers with those of producers in terms of returns, maturity, risk and liquidity This would require a regulatory framework which gives reasonable protection to investors without smothering the market with complex regulations. ❐

Hybrid Rice: An Opportunity For Food Security In India

A. Janaiah, Ilyas Ahmed & B. Viraktmat

The authors underline the need for intensive research in hybrid rice to suit upland and low land rainfed eco-system in view of the production_plateau reached in such a programme for the irrigated eco-system. They add, these low eco-systems have huge untapped potential. Side by side, efforts should be continued vigourously to improve the quality of hybrid rice.

RICE is the most important food crop in India contributing about 40 per cent to the total foodgrain production The rice scenario has undergone remarkable changes with the introduction and popularisation of semi-dwarf high yield potential varieties like Jaya, IR 8, IR 20, etc., a package of modern production technologies coupled with incentive output prices since mid-sixties. Rice production has increased from about 20 million tonnes during 1950-51 to 74 million tonnes by 1991-92, with an annual compound growth rate of 2.86 per cent. The productivity level during the same period has also gone up However, the additional area brought under rice cultivation during the last four decades is only 12 million hectares. Therefore, about two-third of additional rice production is due to yield improvement whereas the rest is on account of area expansion. The growth in rice production and productivity become sluggish specially since 1985-86 because of various factors such as stagnant yield level in irrigated ecologies which contribute about 60 per cent to total rice, occurrence of a variety of pests and diseases incidence, degradation of soil and water, shift from rice to cash crops due to output-price disparities among food and cash crops etc As such the issue of increasing rice production on ecologically and economically sustainable basis is of serious concern of agricultural, environmental and social scientists, and policy makers

It is a known fact that the rice demand for 2000 AD is about 100-105 million tonnes to sustain the self-reliance in rice front But, on one side, the various ecological and economic problems are multiplying. The salt affected area has increased to about 26 million hectares by 1991-92 from 8 million hectares in 1980-81 (Fertilizer Statistics, 1991-92). In addition, waterlogged area has expanded by about 14 million hectares whereas flood prone area in this country is about 40 million hectares On the other hand, irrigated rice area increased to about 19 million hectares by 1991-92, where we have already reached genetic yield plateau. Under such circumstances, the importance of hybrid rice has been realised by the Indian Scientists and policy makers as an immediate alternative to break the yield plateau specially in irrigated rice ecologies. For this purpose, efforts have been made to exploit hybrid vigour in rice on commercial basis by launching a mega UNDP-FAO-ICAR funded project during December 1989 with twelve research network centres viz., Hyderabad, Maruteru (A.P.), Coimbatore (T.N.), Mandya (Karnataka), New Delhi, Karnal (Haryana), Kapurthala (Punjab), Pantnagar (U.P.), Faizabad (U.P.), Karjat (Maharashtra), Cuttack (Orissa) and Chinsurah (West Bengal) under the coordination of Directorate of Rice Research, Hyderabad.

The Need

Food Security: The growing needs of food for teeming millions are increasing year by year. We require about 230-240 million tonnes of foodgrains by 2000 AD, of which share of rice is about 100-105 million tonnes to sustain the self-sufficiency in food front. Of various short and long run approaches contemplated, exploitation of hybrid vigour in rice is well recognised as readily available means to enhance the productivity level for achieving food security in this country

Area Limitation: Since additional area is not available for rice in near future, increasing the productivity is only the alternative means to add some quantum to total production. Therefore, cultivation of a promising rice hybrids by the replacement of the present HYV would add sizeable quantum to total rice pool at the rate of about additional one tonne per hectare

Ecology-Based Technology: As already pointed out a series of problems are posed by changing environmental scenario specially degradation of soil and water in rice growing regions of India. Under such circumstances, hybrid rice technology would be considered as the best from the ecological point of view because of its impressive yield advantage under the same crop management and level of inputs That means, replacement of just seed without any additional inputs such as fertilizer, irrigation etc. would give impressive yield advantage

Role in Buffer-Stock. About 90 per cent of our buffer-stock of foodgrains is contributed by irrigated rice ecology Therefore, popularisation of hybrid rice cultivation in the irrigated eco-system would contribute sizeable quantum of rice to the central buffer-stock which is an essential for sustaining food security

Yield Ceiling in Irrigated Ecosystem: As already pointed out that the yield levels are almost stagnant since 1985-86 in irrigated ecosystem which contribute about 60 per cent of total rice production with 42 per cent of total rice area. It is time to look for an alternative eco-friendly approach to break the ceiling of irrigated rice yield level. Some promising rice hybrids being developed at various network centres in India are meant for irrigated ecologies where a promising hybrid can yield atleast one tonne extra per hectare over the best local HYV. Therefore, hybrid rice can alone enhance the yield level in irrigated regions under present context of ecology and economy If we bring 60-70 per cent of irrigated rice area under hybrid cultivaton like in China, it would contribute about 10-12 million tonnes of additional rice in India.

Cost -Benefit Analysis

Yield Margin (Farm level evidences from Andhra Pradesh): The yield levels obtained from on-farm trials conducted during 1992-93 kharif and rabi seasons varied from region to region and hybrid to hybrid In Warangal district, the hybrids MTU-HR-2002 and MTU-HR-2003 recorded about 1 0-1.3 tonne/ha of an average yield margin over the best HYV i.e. BPT 5204 and IR 64 In case of Ranga Reddy district, almost all hybrids of Maruteru origin have shown impressive yield advantage to the tune of 1 8-2.0 tonnes/ha over the best popular HYV BPT 5204 The results from on-farm trials in Kurnool and Chittoor districts of Rayalaseema region indicate an average yield increase of about 1.0-1 5 tonnes/ha as compared to the best rulling HYV in that region. However, this yield margin in some coastal districts viz, West Godavari, East Godavari and Krishna districts are not that much impressive as in Telangana and Rayalaseema regions. The reasons for low yield margin from hybrid rice over the best HYV in Coastal districts are (i) Non-suitability of duration of hybrids: Most of the present available hybrids are medium duration types which are not suitable to replace long duration varieties like Swarna, Vajram, etc. in the command areas of A.P.; (ii) Problem of severe pests and disease incidence· Since the present available hybrids are not tolerant to pests and diseases, these present hybrids may not be suited to coastal districts. However, there is an ample scope in the future to improve the adaptability of hybrids even under coastal region situations. The research efforts are already in progress to evolve long duration hybrids possessing resistance to major pests and diseases

Incremental Benefit-Cost Ratio: The reported average yield margin of 1.2 tonne/ha (under Telangana and Rayalseema conditions) means Rs. 4200/- per hectare of profit margin in hybrid rice cultivation as compared to the best local HYV under the same level of crop management. The incremental cost towards seed is Rs. 600/- per hectare.Hence, a farmer will get net profit margin of Rs. 3600/- per hectare under the same level of production mangement and inputs excepting the change of seed material Therefore, by spending one rupee towards the seed replacement, a farmer will earn Rs. 6/- as a net profit

Seed Production: Seed is an important and dynamic input in the adoption of hybrid rice technology The average seed (F1) yield reported at various research network centres indicate wide spatial and temporal variations ranging from 300 to 2100 kg per hectare. Hybrid seed production involves certain extra care in crop management and additional inputs which require some incremental costs. The average seed (F1) yield of 1658 Kg/ha with the production cost of Rs. 10 66 per kg (excluding restorer seed and straw value) was estimated based on the data from various network centres and from some private seed companies. So, the total cost incurred in the seed production was worked out at Rs. 17,674/- per ha (excluding Restorer seed and straw value). The Gibberallic Acid (GA-3) application itself constitute a major cost component (about 30%). However, there is an ample scope for reducing the seed production cost by about 30-40% without application of GA-3 as reported by some private seed companies. The net returns were worked out at about Rs 16,300/- at the rate of procurement price of Rs. 25/- per kg to be paid by the seed

companies to seed grower which is highly profitable as compared to commercial rice cultivation. In addition to its attractive profitability, seed production on large scale would provide a sizeable employment opportunities as seed production requires additional manual operations like rouging supplementary pollination, gap filling etc.

Need For Re-orientation

The present hybrid Rice Programme is mainly meant for irrigated eco-system Undoubtedly, irrigated areas where we have already reached genetic yield plateau, have good potential for hybrid rice cultivation. The irrigated area will add only 10-12 million tonnes if we bring 60-70% of irrigated rice area under hybrid cultivation. This quantum is not sufficient to achieve food security in this country . Intensive research efforts should be made to develop the hybrids which will be suitable for upland and low land rainfed eco-systems where average yield is quite low. These two eco-systems have huge untapped potential. Keeping this in view, research efforts should be reoriented towards upland and lowland rainfed rice eco-systems in future. These efforts will help to enhance the yield levels in these regions which can also narrow down regional imbalances and rich-poor variations among the rice farming community in the country.

There are two important aspects to be mentioned here before concluding this topic. The first one is grain quality concern. The grain quality of present hybrid rice is an average fine type. We are mainly interested in the food supply to feed the rural masses who will prefer even coarse cereals, in case rice is not available. However, the efforts have already been started to improve the grain quality of hybrid rice at some research stations. The another important aspect is yield stability and adaptability. Yield stability is an important factor influencing farmers' decision making process in the adoption of hybrid rice technology. Since, we are at the initial stage, wide spatial and temporal variations in yield and level of adaptability are observed in the country. It is hoped that our plant breeders can further improve rice hybrids which will give stable yield with atleast yield margin of one tonne/ ha across the different rice ecologies in the near future. ❐

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(Continued from page 4)

contributed by a decrease of 4 4 per cent in POL imports and 2 1 per cent in Non-POL imports.

_During the period August, 1991 to July, 1993, total foreign investment approvals amounted to Rs. 91.78 billion. The major sectors are power, oil and food processing, accounting for over half of total approvals. Of the total approvals accorded, about 80 per cent were in the high priority industries

_Fiscal deficit which was 8 4 per cent of GDP in 1990-91 was brought down to 6 0 per cent in 1991-92 and further to about 5.6 per cent during 1992-93. In 1993-94, the fiscal deficit is envisaged to be brought down to about 4.7 per cent of GDP The manoeuvrability gained by containing the fiscal deficit has been used to substantially enhance the outlays for programmes of poverty alleviation and human resource development

_A significant development has been a general decline in the rate of growth of prices and a very substantial fall in the rate of inflation. The annual rate of inflation (measured in terms of the Whole-sale Price Index) for the week ended August 21, 1993 at 6.7 per cent was much lower than 8.6 per cent about a year ago.

_The Consumer Price Index (Base. 1982) at 253 in July, 1993 also reflects a much lower annual rate of increase of 4 5 per cent as against 13.1 per cent during the corresponding period last year

_A substantial reduction in the rate of inflation is a major achievement of our policy of fiscal correction and specific measures taken to contain price rise It is commonly known that inflation hits hardest the poorest sections of our society. Thus control of inflation has been of a vital benefit for the poor. Besides bringing relief to people, this lends confidence in macro-economic management and in carrying forward the process of reforms. ❐

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Integrated Farming Research For Sustaining Food Production

Dr. P.N. Tiwari

THERE has been impressive increase in crop production, specially in wheat and rice in many developing countries during 70's and 80's due to availability of improved varieties and supply of fertilizers, irrigation and pesticides However, both these major food crops have failed to maintain the uptrend in India recently Rice production which showed a marginal growth of 3 million tonnes in 1989-90 over the previous year has stagnated at about 75 million tonnes ever since. Production of wheat too has not gone beyond 58 million tonnes in the last four seasons despite three successive good and one, not so bad , monsoon years This fact shows that the yield levels have reached a plateau In fact, there are indications of decreasing production in the green revolution area where high inputs have been used over a long period. The farmers of this region were getting 4.5 tonnes/ha with an input of 60-70 Kg of nitrogen But now they have to apply 120 Kg or more of nitrogen to get the same yield In the meantime because of the imbalanced application of fertilizer, phosphorus build up has taken place in soil. Thus despite having the same high yielding varieties it would not be possible to obtain the same high yield in the long run with the present cultivation practices In fact, the long term selected fertilizer use experiment has shown that the yield became almost zero in about 20 years if only nitrogen was used as fertilizer. During the same period yield reduced to 1/4th even if all the three fertilizers namely nitrogen, phosphorus and potassium were used in increasing dose It is, therefore, quite evident that the modern farming practice is not sustainable. It has created serious problems of salinity, water logging and soil erosion in several regions. Over exploitation of natural resources may have short term gains but it could often lead to serious ecological degradation

This calls for serious thinking with matching action on the part of policy makers, administrators and scientists concerned with food production to reorient research to develop sustainable food production technology which should be able to produce enough to meet the needs of the society, be profitable to practitioner, conserve natural resources base and provide healthy and safe environment in the long run Such a goal is not easy to achieve especially because of growing need of food for feeding increasing population. Therefore, population control must be the first and foremost step to be taken to meet the food need on sustainable basis. As regards the technology, the integrated farming comprising raising crops, trees and animals together on small family farms has been sustainable over centuries in many parts of the world. Unfortunately, however, in modern times, the interest and expertise in integrated farming decreased almost all over the world as crops, trees and animals are now raised and managed separately on large farms in developed countries Such a practice would not be suitable for developing countries where small farms are inevitable because of large population In these countries labour intensive, integrated farming comprising more than one enterprise has every possibility of increasing production and profit from small farm on sustainable basis

In the integrated farming comprising crop and livestock, the animals are raised on agricultural wastes and the animal power is used for agricultural operation and the dung is used as manure and fuel It may be possible to reach the same level of yield with proportionately less external input in the integrated farming, and the yield would be inherently more sustainable because the waste of one enterprise becomes the input of another leaving almost no waste to pollute the environment and degrade the resource base. To put this concept into practice and to increase its efficiency, it is necessary to study linkages and complementarities of different enterprises in different farming systems. The knowledge of linkages and complementarities will help develop farming system (integrated farming) in which the waste of one enterprise is more efficiently used as input in another within the system. For this, it would be necessary to study the bioconversion processes using modern techniques including nuclear, biochemi-

cal, biophysical, physiological, micro-biological etc. Let us focus on such linkages and complementarities in some farming systems and suggest research programmes. Issues involved in implementation of such programmes will also be spelt out.

Crop-Livestock

There exist several farming systems in India. To elucidate our theme, we shall describe five of the existing farming systems. To begin with we can take the example of widely prevalent crop-livestock farming system. In the conventional system, the crop residues are fed to the cattle and the cattle dung goes back to the field as manure or used as fuel With increasing demand of fuel in rural areas, most of the cattle dung and other organic manure are being consumed as fuel even though it is a very good source of many of the plant nutrients These organic sources can be utilised both as fuel and manure by incorporating the biogas technology in the system. In doing so, the dung as well as the farm wastes are used to produce biogas and the resulting slurry becomes enriched manure The slurry can also be used as fish feed, as discussed later More benefit will accrue if the slurry is incorporated in the soil immediately after application as the loss of nitrogen is very much reduced as compared to leaving the slurry on the surface The same is true for dung also Human excreta is also a very good source of biogas Though, the benefits of biogas technology is well known, it is not being widely used because of location specific technological and adaptation problems More research and innovations are needed to understand the problems which vary from place to place and find their solution to successfully introduce biogas in the farming system Such a farming system would be quite sustainable because the resources are recycled in it which helps in reducing the external input and also improves soil productivity.

Adding Forestry

Inclusion of forestry in the crop-livestock farming system will provide feed and grazing ground for livestock and in return the forest will get back the livestock droppings as manure. However, grazing must not exceed the optimum level for increasing the productivity of the forest. The role of forest cover in the integration is to reduce run-off and soil erosion, increase ground water recharge, function as carbon dioxide sink and preserve the environment.

Multi -System

In integrated farming system, involving flooded rice, poultry and fisheries, a high degree of complementarity is achievable. The potential area in India under rice-fish system has been around 4.5 mha. Fishes grown in ponded rice field provide utilizable source of N to the crop by excreting amino-N as NH_3 It has been observed that yield of rice increased if fish is cultured alongwith rice To increase the productivity of the system, it is necessary to select rice and fish genotypes which are compatible and fit in the system There are many advantages of such a system It has been reported that rice-fish agroecosystem increased nitrogen uptake by rice while increasing the organic carbon content of soil The fish prevents and controls certain plant diseases and reduces incidence of pests and weeds

There has been rapid increase in poultry farming in India The poultry can be effectively integrated in the rice-fish farming system The small fish grown in rice field is a very good poultry feed Besides, poultry also acts as insect suppressant Movement of poultry and fish in ponded rice makes the soil softer and increases dissolved oxygen in water.

Suitable enterprises from the systems already described can be combined together to form another integrated farming system which will be more labour intensive, economically sound and environmentally safe. In such an integrated system, dependence on inorganic fertilizer can be greatly reduced by utilizing the different organic sources available in the system. This, however, would require developing suitable methods of management of organic manures to increase the efficiency of various nutrient elements present in them. Dependence on inorganic manure can be further reduced if green manuring can be practiced by introducing a suitable short duration crop for the purpose. Experiments have shown that almost same yield of rice can be obtained by supplying nitrogen through green manure as inorganic and other organic source. In this integrated system fish production depends primarily on the livestock waste of the farm Fish gets its feed not only directly from manure but also through formation of protein rich zooplankton, phytoplankton and macrophytes when manures are applied to the ponded system. For increasing productivity of the ponded ecosystem based on livestock manure, it is desirable to have an estimate of nitrogen to phosphorous ratio of livestock manures, because nitrogen is more likely to be limiting than phosphorous for bacterial growth and phytoplankton formation It is so since nitrogen is more volatile than phosphorus and thus more readily lost from the ponds Since the amount and composition of livestock faeces and urine vary widely with total liveweight, age and feed characteristics, climate and management, the waste characteristics of a species must be determined for each specific situation

Manures, added to fish pond, vary in their efficiency to produce fish biomass Manure obtained from one dairy cow can produce 100 to 200 Kg/year of fish biomass whereas manure from one broiler can produce 3-4 kg/year of fish biomass. Experiments conducted in Thailand, using different sources of livestock manure, in raising of fish has shown that the number of different livestock to be kept in a farm for raising the same fish biomass are widely different.

Labour Intensive

Poultry, piggery fishery, earthworm breeding, mushroom cultivation and biogas generation can be integrated to form economically and environmen-

tally sound labour intensive farming system in a small area. The poultry droppings can be used as pig feed. Pig excreta can be used for biogas production giving energy for the farm. Part of the biogas slurry goes for earthworm breeding and the earthworms produced are used as poultry feed. The biogas sludge can also be used for edible mushroom production, and raising fish in the pond. Orchard can be added in the system if the area is larger. The fish pond sediments and biogas sludge can then be used for manuring the orchards.

In such integrated systems, not only there will be direct inputs to the individual sub-system but also the waste and part of the output of one sub-system becomes the input of other sub-system.

If this complementarity principle of utilizing the waste of one system to the other is fully exploited, the production cost can be reduced and the efficiency of the system can be improved. In order to evolve a potentially efficient integrated farming system of this kind, due consideration should be given to genetic heterogeneity and ability of adaptation to the biotic and abiotic stresses to which the system will be subjected to. In this system the total productivity per unit of land is likely to be more as compared to a single enterprise.

For promoting integrated farming research, one has to understand the characteristics of the farming system research, which are as under·

1. The farm must comprise more than one enterprise.

2. All enterprises should be viewed in a holistic manner taking into account linkages and complementarities between the enterprises and their sub-systems.

3. The research project is multidisciplinary and holistic in perspective

4. The research involves the farmers in critical phases of the research project. The project begins by involving farmers in the diagnosis of the farming system, and ends by verifying recommended new practices using farmer managed on-farm trials.

5. The research is applied rather than basic and is aimed at generating viable technologies.

Conclusion

Integrated farming has been sustainable over centuries in India and other countries. However, interest and expertise in it have decreased in recent times because of the success of modern farming techniques, which are input intensive, resource degrading and environment polluting There are clear indications that yield levels have reached plateau and are showing decreasing trends in regions where green revolution was more successful.

The Indian farmers have to practise more than one enterprise on their farms to increase the productivity and supplement income because of small farms. In fact, most Indian farmers are raising crops and animals along with, in some cases, fish or poultry or pig. However, the productivity of their farm is often low because of inefficient integration. The integration is based on traditional knowledge. In fact, very little research is being done to develop modern integrated farming techniques in our agricultural research institutions as these have been charged with developing techniques for increasing productivity either of crops or of animals or fish or poultry with hardly any emphasis on integration. Obviously, there is need to reorient our research to develop, on the one hand location specific integrated farming techniques suitable for small farms based on the information already available in the literature and on the other hand, advance research should be carried out to understand linkages and complementarities of different farm enterprises and bio-conversion processes of farm wastes so that the waste of one enterprise is effeciently used as input of another. High level experts of different disciplines with broad disciplinary base are required for carrying out such research. Our teaching and training programmes are not producing such scientists. They can be developed by giving special training to experts to broaden their disciplinary base.

An important requirement for developing location specific integrated farming techniques is on-farm research for system description, diagnosis and problem specification followed by on-farm solution verification and feed back along with solution design and on-station solution testing. Krishi Vigyan Kendras which have been established in different districts of the country may play important role in it. The Krishi Vigyan Kendras located in a particular district may provide base for on-farm research to an expert team charged with the responsibility of developing integrated farming technique for that district. The team may carry on the work of solution design and on-station solution testing in advance centres of research located in the region This team may be born on the establishment of the advanced centre of research.

From the facts given above, it is evident that some basic changes will have to be made to implement these ideas. It is now for the policy makers and managers of research and development to give serious thought and make the required changes in their respective organisations to meet the requirements of integrated farming research. ❐

(The article is based on the Presidential address delivered by the author at BHU last year).

Strategies For Agricultural Development In Tribal Sub-Plan Areas

D. Venkatesan

AGRICULTURAL practices and production amongst the tribal communities have reportedly been poor owing to the continuation of their traditional methods of cultivation and various physical and socio-economic problems The Scheduled Tribes population in India, according to 1991 Census, is 87 8 million constituting 8.08 per cent of the total population and a majority of them rely on cultivation for their livelihood. According to the Agricultural Census 1985-86, out of the total operational landholders (97.2 million) in India, tribal landholders accounted to 7.6 million (7.9 per cent). Of India's operated area (164.6 million hectares) 17.2 million hectares (10.5 per cent) of land belong to tribals and the net area cultivated accounts to 14.9 million hectares (86.1 per cent). About 3.2 million tribal holders (41.3 per cent) belong to marginal cultivators (less than 1 hectare) and about 93 per cent of the operational holdings is owned and cultivated by themselves and only 22.2 per cent of the area is wholly or partly irrigated The average size of the tribal landholdings per households varies from 0.66 hectares in Kerala to 7.46 hectares in Nagaland but in majority of the States the tribals own an average from 1 to 2 hectares. An average tribal holding in India is about 2.25 hectares which is higher than the Scheduled Castes (1.95 hectares) and others holding (1.25 hectares).

Low Production

Resource constraints, absence of adeqate irrigational facilities, ignorance of modern technology, poor cropping pattern and fertilizer input etc. and also non-availability of agricultural incentives at times are the crucial factors for low production in the tribal holdings. Lack of enthusiasm by the implementing agencies in popularising the modern technological inputs for better agricultural productivity is another substituting factor. Many sample surveys conducted in various tribal areas indicate these as the main reasons for their low productivity.

The landholding size of the tribals has also been declining due to various factors, primary being the increasing number of eligible inheritors of land in tribal households. Land alienation is also a vital issue which has not been eliminated completely though there has been several protective measures taken up by many States/UTs through Legislations and Acts. Apart from these, type of soil in tribal holdings is also reported to be infertile and mostly found in terrains or adjacent to forests.

There has been a significant qantification of funds from Plan to Plans in States/UTs for Tribal Sub-Plan as a policy adopted for direct socio-economic development of the tribals. As agriculture being considered the most important sector for overall development, the Tribal Sub-Plan has also been provided substantial funds particlularly for tribal agriculture and related development. In certain States/UTs, the notional contribution and inappropriate schemes for agricultural production in Tribal Sub-Plan areas have not helped the tribals to improve their primary economic base. Some States/UTs, however have formulated a few schemes for increasing agricultural production, implemented through State Seed and Farm Development Corporation, Land Development Corporation and Agro-Industrial Development Corporation.

In the Eighth Plan the Government of Madhya Pradesh has proposed 33 per cent of funds for agricultural development in Tribal Sub-Plan areas out of the total Tribal Sub-Plan outlay of the State and formulated strategies for increasing tribal agricultural production. In Orissa, the farmers in Tribal Sub-Plan areas are being imparted training for

use of latest technology in agriculture related activities to a specific agro-ecological and socio-economic condition through Krishi Vigyan Kendras. In addition, the Village Agricultural Workers (VAW) work for implementation of various agricultural programmes.

Other States/UTs have also formulated programmes for the development of tribal agriculture. However, the schemes implemented in various States/UTs resemble almost one another and much has been focussed on soil and water conservation. Though these two sectors are important for better agricultural production, other basic necessities like land shaping and development, crop protection, irrigation, motivation, etc. should also be considered.

Strategies

The tribal lands are majorily categorised as dry land and they cultivate their land for a particular season when the monsoon sets in but in some years even one time crop cultivation could not be undertaken due to the failure of monsoon. However, lift irrigation, either through human or animal efforts from the wells, tanks, streams, etc. is a traditional watershed management system used for irrigation. In many of the tribal areas, storing water for irrigation have not been considered important by tribals as they are not aware of its long term utilisation and also they treat such efforts as a waste. There are sometimes cultural barriers where tribals are discouraged by their cultural norms to obstruct the flowing water. In such a situation, motivating the tribals for integrative development approach for developing irrigational facilities need to be emphasised taking into participation the tribals themselves. Agricultural practices of small and marginal tribal farming communities has to be integrated into allied activities such as animal husbandry, horticulture, sericulture, pisciculture, agro-forestry, etc.

The Recommendations of the Working Group during the Eigth Plan for Welfare and Development of Scheduled Tribes indicated that (i) outlays under crop husbandry, horticulture, social forestry and other related sectors should be channelised through Integrated Tribal Development Programmes (ii) Tribal Sub-plan areas should be identified as sub-zones in each agro-climatic zones; (iii) TSP areas should receive much priority for agricultural research, education and extension services; and (iv) an integrated scheme of agro-forestry or agriculture with horticulture, sericulture and pisciculture should be designed and implemented in TSP areas Though the priority and thrust in the Eighth Plan has been for better agricultural production, considering the higher average land-holding size among the tribals, an attempt may also be made accordingly to increase the agricultural production in TSP areas which may include:

- Cooperative farming with the tribals' participation involving their social system;
- Mixed farming involving various high yield varieties of crops;
- Land shaping and development in interior tribal areas;
- Identification or development of cropping pattern for sustainable cultivation in unirrigatable tribal holdings; and
- Provision for minor irrigation facilities through construction of small check dams across the perennial streams or facilities for lift irrigation from these streams.

By implementing these measures, cultivation and production can be increased among the tribals. ❐

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Planning Perceptions

PERCEPTIONS of planning differ from person to person. Prof H R Hashim, Principal Adviser (Perspective Planning) answers some questions in context of Planning in India today

Q. How are the differences that may arise between the Centre and the States resolved?

The nature of differences that might arise are the following

There can be differences between the Centre and the States in the case of setting out priorities For example, expanding road transport may be important for a State Government whereas development of agriculture at that point may be very important in the Centre's view In that case they are sorted out by discussions and the final decision is taken in the meeting between Chief Ministers of the State and the Deputy Chairman, Planning Commission

The Centre may assume some resources for a particular State but the State may not agree Ultimately an agreed plan however is evolved after discussion

The objective of the Central Plan is to strengthen and support the State Plan and also to implement some of the very important priorities For example, it is quite possible that the Central Government finds that the States are not spending enough money on family planning. It is not that the States do not believe in family planning, but they may not have enough resources Hence, the Centre may come up with a Central Plan to implement the family planning programme Again, say, in the case of power sector most of the States have their own power generation and Electricity Boards They do not have enough funds to generate power that is needed Then the Centre will intervene and come to their rescue Similarly, a state may not be very conscious of export promotion as they do not directly deal with foreign exchange In that case it is the centre which has to take initiative.

The Central Plans are mostly for infrastructure development (energy, transport, railways, civil aviation, environment, education, communication and agricultural research) but there is one subject which creates conflict and controversy, i e , distribution of certain funds among the States by the Centre A formula is evolved (Gadgil Formula) based on a number of criteria which include population, income (higher funds for low income states) and other considerations When the formula is being evolved it is debated and finalised by the National Development Council (NDC)

Q. What is the role of planning in economic development at present?

The planning process assumed an important role in view of changes in economic policies, reforms and structural adjustments Indian Planning was a mixture of indicative planning and direct central planning in important sectors like transport, power etc The Indian economy is also called a mixed economy The role of public sector was expanding during the Second, Third, Fourth and Fifth Plans The public sector went into many areas and even into less important ones Presently, there are a lot of problems arising out of the poor performance of the public sector The most important problem is the inefficiency of the public sector There is no measure for efficiency, most of these being monopolies Most of the industries in the public sector have been incurring financial losses which is causing great strain on the fiscal health of the Government On the other hand, the Government also took up a lot of activities for the poor All those activities are heavily subsidised. In most of them, the Government was charging less than the cost The distribution of foodgrains through fair price shops to the people is being done at low price than cost Most of the programmes started for the poor but in course of time they covered nonpoor sections of the population as well The losses in public sector together with subsidies put a heavy burden and forced the Government to borrow even to meet its day-to-day expenditure Hence, Government savings became negative. This situation led the Government to bring reforms in government structure by way of (i) privatising many activities where Government presence is not necessary (ii) rationalising and targeting subsidies (if they are meant for the poor, they should go only to the poor) and (iii) limiting the size of Government for which details

are being worked out. It is also found necessary, to remove many controls which are found unnecessary; particularly controls and licensing of industries so that the private sector can enter freely into industry It was also found necessary to reform foreign trade and rationalise the tariff structure.

The above reforms in a small measure started more than ten years ago but for the last one and a half years they are taken up in a big way. Hence, in the Eighth Plan this was debated at great length as to what was the role of planning in the reformist regime.

The conclusion is that in our country, because of the existence of large sections of poor people and less developed regions, an agency which can plan and coordinate all the economic activities of the States and the Centre is necessary in order to protect the poor, to protect environment and ecology, to have a policy on population growth and to take care of the future in general

We have markets which are not fully developed. We have infrastructural needs were private sector is not prepared to enter There are isolated villages for which we require developed roads and other facilities for them to grow We now welcome private sector investment even in power, road, civil aviation etc Similarly, agriculture is in the private sector but small farmers cannot do agricultural research It is the Government which has to do it In social sectors like primary education, health and minimum needs it is the primary responsibility of the Government Similarly, in sensitive sectors like foodgrains (food security) and food to meet the minimum requirements of the poor_all these are the responsibilities of the government for which proper planning is needed But wherever private sector can participate in alleviating these problems, it is welcome The Government can give more responsibility to the private sector as they take initative and grow more and more In that situation planning becomes more indicative

There is emphasis on developing people's organisations and people's participation at village level. Earlier this was lacking as the Government thought it could do every thing with its bureacracy. Hence, more emphasis is now given on decentralisation. The Government will also encourage voluntary organisations and agencies to organise people in various production sectors.

Q. What are the macro regulatory means?

There are two ways, one the direct regulation through government funding/budgeting and the other, the indirect means through policies. Investments are visualised every year in the plan and expenditures are made accordingly As far as overall budgeting is concerned we are monitoring fiscal deficit The borrowing of Government plus deficit financing constitute fiscal deficit. This should not cross the limit say 5.5 per cent of GDP. This has acted as a great constraint on Government spending This has implications on money supply. The government cannot expand money as it used to do because of this limit Hence, there is a check on inflationary pressure Another macro parameter which is monitored is the current account deficit There are regulations on the lending by banks to the private sector In day to day macro management, it is the Finance Ministry which is directly involved, although the Plannng Commission participates in fixing the targets

On the non-financial side of macro management, the policies for imports and exports and the policies concerning consumption and use of crucial commodities like petroleum, fertiliser etc are important. Hence it is the price mechanism which is the main instrument

Q. What are the measures taken for implementing the plans?

The Planning Commission confines itself to the evaluation of implimentation Whenever it finds some things not being implemented, it brings pressure on ministries through discussion/persuasion. The Planning Commission did not as such have administrative instruments of monitoring of implementation. When the Eighth Plan was being formulated some important measures were introduced in the formula for distributing central fund to States. A certain part of fund is related to performance in very crucial areas which will be measured by—(i) tax efforts by the States and (ii) financial management (there should not be deficit in fulfilling commitment), (iii) meeting the national objective like population control etc. If the states are found deficient in implementing certain programmes, they made up through central schemes which work on the basis of matching funds and act as an incentive for implementing the schemes by the States. Sometimes in poverty related programmes the incentive is more_state 20 per cent, centre 80 per cent If a state has grown faster in population it would not get more central assistance For allocation of funds population of 1971 is considered This is a measure of disincentive With all these the Planning Commission's instruments of control are rather soft Between 40 to 45 per cent of the state plan is financed by the centre

Q: What has been the performance of the economy?

The GDP growth rate was 5 5 per cent annual during the eighties Due to fiscal crisis the growth rate was less than two per cent in 1991-92 Imports had to be cut down which affected large part of industrial production and thereby exports.

During the Eighth Plan, a target of 5 6 per cent annual growth on an average is envisaged.

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Nehru And India

Asoka Mehta

He filled people with the desire of the blue sky...He schooled them in the first principles and with vision gave them discipline. He had profound faith in their creativity. Revolutionary, hero, socialist, modernist, he imparted rationality to emotions. To free man from traditionalism, to individualise him, to engage his energies in co-operative endeavour_this was his faith.

THOSE who have grown up in the shadow of the personality of Pandit Nehru can scarcely realise how much of their very thoughts have been shaped by him Millions in India and elsewere are his spiritual children who have learnt to comprehend the world in terms of his ideas and idioms As he incarnated an epoch, so did he shape a whole generation.

Pandit Nehru combined in himself three qualities that have rarely gone together. First, he had a passion for knowledge, no sphere of it was alien to him He roamed over the world of knowledge with the same zest and communion with which he moved in the world of men. Secondly, he had the insight of a historian. Behind the ebb and flow of events he sought the patterns and purposes of men. He was able to bring simultaneously both commitment and objectivity because he could set events in the background, as well as the perspective, of history. Again, he was profoundly concerned about the dignity of the lowliest of men. To help every person to discover and realise his full stature was his fundamental quest.

The deep respect and concern for man's dignity made him a fighter for freedom, a democrat and a socialist. The shackles round the enslaved have to fall off if man is to become erect again

The mantle of leadership sat easily and naturally on Pandit Nehru To see him was to acclaim him That charisma in him he used to lift men's thoughts and emancipate their hearts and minds His hold over the people was massive and legendary and he retained and strengthened that hold over many years without ever resorting to irrational appeals. Like the prophets of old he evoked men's allegiance by uplifting them and not by degrading them as mass politics tends to do

It was his unique gift to make rationality emotionally acceptable. Even when he stirred the elemental levels of mass emotions, as he had to if he was to arouse his people against colonal rule, he effortlessly maintained the discipline of larger purposes on them. He could provide soaring vistas to struggling nationalism and on the morrow of its triumph endow it with international obligations He understood and respected people's limited loyalties to nation, religion, language or class, but while acknowledging them he ceaselessly endeavoured to transform them into something less exclusive Whatever the heights to which the wings of men would carry them, he filled them with the desire of the blue sky. Anything narrow he abhorred because he saw vista and vitality inextricably linked together

He had a passion for asserting the first principles unequivocally. That is why he had insisted on the Congress accepting the objective of complete independence even though he believed in the interdependence of nations, and, in fact, emerged as the architect of a totally altered Commonwealth Likewise, he progressively pushed the Congress to the acceptance of democratic socialism, even when in practice he recognised many compromises. He insisted on the clearest enunciation of objectives, remaining stubbornly uncompromising there, because he felt that such clarity

helps the people to trace the course, like the light on the hill-top guiding travellers in their pilgrimage. In the day-to-day life compromises do occur; only incandescence of objectives saves the people from getting bogged down in them. Men's day-to-day efforts are the result of their fluctuating strength, but the assurance of an endless surge of strength depends on the sharpest delineation of the purposes.

He had unswerving faith in the creativity of the people. He was essentially an inspired artist whose medium was the people around him. As the sculptor, and he alone, sees in the marble the outlines of the image he seeks to carve, so did Jawaharlal see in the people their unfolding potentialities he cherished! Here was a successful revolutionary, a modernist who strangely enough was indifferent to organisation. He felt that he abridged and atrophied men when he merely held them within the folds of an organisation; he enlarged and liberated them when he evoked response by widening their horizon or imparting rationality to their emotions. In the age of organisation, he remained the supreme exponent of "Thou and I" relationship with his fellow-men.

He brought to the Indian Parliament a quick maturity because for him it was the classic forum where one speaks, argues, explains, expounds. The parliamentary work he supplemented with countless public meetings where millions gained face-to-face communion with him This aristrocrat, scholar, statesman could open out unreservedly, could reveal his innermost thoughts and self, not to any single human being but only to the people. That was so because, in the concourse, in fact, he spoke to every man. It was always a dialogue, never the harangue.

What made him cherish the Parliament as an institution also made him give rare significance to the Planning Commission that he nurtured. The Commission, through its plans and projects, was expected to provide rationality to men's endeavours and meaningful foliation to the aims that guide and inspire these efforts. Here too was not a strait-jacket of an organisation imposed upon the people, but an effort at broadening the horizon, deepening understanding and enlisting energies in the task of social transformation. As with the Master, Pandit Nehru's constant preoccupation was with means shaping the end. Every step had to be endowed with the full glory of the pilgrimage.

He was the most accessible of men. In his contact the tensions were stilled. Here again, like Gandhiji, he had the healing touch in him. Under his spell men did not work out some patchwork compromise, they somehow rose above their fragmentary faiths and sensed something of the universal *gestalt* that guided him. Behind every discordance there is always the possibility of uncovering, achieving some harmony. It was only when rigidities were imposed and ossification insisted upon that possibilities of such a change from discord, distrust and dissensions to understanding got closed That is why Jawaharlal Nehru fought relentlessly against intolerance, whether religious or international

He had a deep sensitivity to and appreciation of the past as the log book of his great voyage *The Discovery of India* testifies He, however, had a horror of crusted traditions He remained for over seventy years the symbol of youth because he, as it were, exuded regeneration Growth, change, foliation were for him the vital thrusts. In them and through them men could seek their liberation. Rigidities, ossification and obscurantism in so many ways imprison and entomb men. These were prisons to be shattered, not shelters to be sought.

He, as a student of science, understood and welcomed the revolutionary impact of science and technology He sought to harness their forces to lift from his countrymen the burden of poverty and hunger. He hoped to dot the land with mighty projects and proudly acclaimed them as the new places of pilgrimage. It was crystal clear to him that political freedom had to ensure social liberation and that could come only through economic growth which demanded the fullest use of science and technology in transforming to gainful ends, the untapped natural resources of the land. Here too his deep concern for right means to ensure the desired end led him to espouse socialist modes of development.

His faith in his fellow-men made him a confirmed democrat. He never hesitated to endow the people with wider powers and responsibility because he never doubted their ability to use them wisely. The same faith made him secular in outlook If religion and religion alone shaped all the contours of life and culture, what would happen to the ultimate faith of Man that Rabindranath Tagore had aptly called *The Religion of Man?* As nationalism remains creative and positive only when fitted into international understanding. so does religious faith remain protean only in the framework of tolerance and mutuality of respect To free man from the totems and taboos of traditionalism, to individualise him and to socialise him, to engage his energies and enthusiasm in co-operative tasks of transformation was for Jawaharlal the rationale of his socialist faith.

He loved men around him, not just the children, but every single person he could reach That outflowing love made humanity respond to him with a rare fervour. As the meanest musical instrument unlocks its harmonies in the hands of the master musician, so the meanest of men under Jawaharlal's influence reached forth to the founts of creativity that reside in every man. This profound faith in men was combined with implicit allegiance to reason. It was the intermingling of faith and reason that made Nehru the *knight sans peur* that he truly was ❒

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Kachchh Attains Total Literacy

R.K.A. Jaswani

THE border district of Kachchh, a backward region has attained total litracy. The total literacy drive was launched last year on the Independence day.

The district panchayat has been entrusted the job by the Central Government. In this gigantic job to impart three R's to 1,93,600 persons, the district panchayat has mobilised support of various voluntary organisations, as many as 8,000 primary and secondary teachers, health workers, students and neo-literates

As a result of the various awareness programmes rural women in a large number have taken to reading and writing. Some villages have made remarkable achievements. In a span of one year, 100 per cent literacy has been achieved in 20 villages of the district As many as 40 more villages are now about to be declared to have achieved 100 per cent literacy

In many villages, Sarpanches and other well-to-do people and Mandals have lent support to the programme by offering their premises and free electric connection to run the classes. Despite big distances between the villages and thin population in the third biggest district of the country, the site of night classes in the rural areas have become common during the last one year. To jump from 43.78 to 100 per cent literacy in one and a half year is really a big challenge which has been seriously taken up.

The State Government has announced special awards for Panchayat ranging from Rs. 5000/- to Rs 25,000/- depending upon the population attaining 100 per cent literacy and this money can be used for post literacy activities. No doubt, it is a laudable measure as a follow up action to accelerate the pace of all round development in the backward region of Gujarat State. ❒

The author is a freelance journalist.

Total Literarcy Campaign

WITH the recent approval of 19 projects for total literacy by the National Literacy Mission executive committee, the number of districts under literacy campaign has risen to 213. In addition, 75 districts are witnessing the second phase of the campaign_post_literacy, including the recently cleared four projects. It is proposed to cover 345 districts during the VIII Plan under literacy campaign.

The new projects for total literacy include Dumka, Jamui and Khagadia in Bihar; Goa; Vadodara in Gujarat; Bangalore rural in Karnataka; Dewas, Chindwara, Rewa and Tikamgarh in Madhya Prdesh; Amravati and Beed in Maharashtra; Gajapati in Orissa; Tonk, Baran and Pali in Rajasthan; Sambuvariyar Tiruvannamalai in Tamil Nadu; and Farrukhabad and Jalaun in Uttar Pradesh. The post-literacy campaign projects include Srikakulam in Andhra Pradesh; Kheda in Gujarat; Mandi in Himachal

Literacy Mission

Effective Campaign Approach

LAUNCHED with the slogan 'Each one—teach one', the National Literacy Mission (NLM) aims at imparting functional literacy to 800 lakh adult illiterates in 15-35 age group by 1995. By already making more than 318 lakh persons literate the Mission is steadily moving towards its avowed goal

Overall literacy rate in the country (for the population aged seven and above) has increased from 43 50 per cent in 1981 to 52.21 per cent in 1991 Whereas the male literacy rate increased from 56.37 per cent in 1981 to 64.13 per cent in 1991, the Female literacy rate increased from 29.75 per cent to 39 28 per cent during 1981-91 registering an increase of 9.54 per cent.

Emerging Scenario

Kerala tops the literacy rate list with 89.79 per cent followed by Mizoram—82 27 per cent, Lakshadweep—81 78 per cent and Chandigarh—77.81 per cent. At the bottom of the ladder are Bihar (38.48 per cent), Rajasthan (38.55 per cent) and Dadra & Nagar Haveli (40.71 per cent).

The increase in female literacy rate has been very significant in Sikkim—19 29 per cent, Lakshadweep—17.45 per cent, Haryana—13.57 per cent, Manipur—13 per cent, Daman and Diu—12 94 per cent, Pondicherry—12.63 per cent and Andaman & Nicobar Islands—12.26 per cent.

The literacy rate is above the all India level of 52.21 per cent in case of 22 States and Union Territories Only Bihar, Rajasthan, Arunachal Pradesh, Mizoram, Orissa and Dadra & Nagar Haveli are still below 50 per cent.

Starting with Kottayam town in Kerala in April-June 1989 and in Ernakulam district in December 1989 campaigns for Total Literacy were launched and successfully conducted in the entire State of Kerala and the Union Territory of Pondicherry These campaigns have so far been approved for implementation in 213 districts (either partially or fully) through projects in the States of Andhra Pradesh, Assam, Bihar, Goa, Haryana, Himachal Pradesh, Gujarat, Karnataka, Madhya Pradesh, Maharasthra, Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bengal.

The NLM is a societal mission whose success rests on the mobilisation of the social forces and securing the people's participation. After experimenting with successive and alternative models of adult literacy and education programmes, India has now settled down to the campaign approach. The campaign approach represented by the Total Literacy Campaigns is area specific, time bound, voluntary based, cost-effective and outcome oriented.

Evaluation

Total literacy campaigns have concluded in 75 districts and post literacy campaigns have also been launched in these districts. In order to make status cum impact evaluation of the total literacy campaigns, an Expert Group has been set up which would guide and supervise some selected institutes of social sciences in conducting the evaluation

The main objectives of this status cum impact evaluation would be to measure the outcome of literacy campaign among learners with respect to prescribed levels of literacy as per NLM norms and to analyse the estimated number of persons made literate by gender, age group and social groups like Scheduled Castes and Scheduled Tribes

In the Eighth Plan, the main strategy would be on the adoption of area approach in the programmes of adult education. 345 districts would be brought under the Total Literacy Campaigns by the end of the Plan period. It is proposed to cover about 80 lakh persons through the total literacy campaigns and an additional 20 million persons through other schemes by the end of the Plan period. A total allocation of Rs 1400 crore has been made for the Eighth Plan in the Central Sector. ❒

Health & Welfare

HLL -The Partaker Of The Population Control Programmes

Dr. Punithavathy Pandian and M. Kannan

DUE to the intensified population control programmes of the government and the popularity of condoms as effective means to prevent veneral diseases and child birth the population growth rate over the past decade has shown a decline of 0.11 per cent Hindustan Latex Limited, a public sector undertaking has contributed much to the population control programmes by producing cheap yet high quality condoms Today Hindustan Latex Limited has condoms for every income group and many of its new brands are making steady progress in the market.

HLL is the single largest manufacturer of condoms working under the Ministry of Health and Family Welfare. The company signed foreign collaboration agreement with M/s Okanoto Riken Gomu, Japan and its commercial production started in the year 1969.

Production and sales of condoms has been increasing steadily and within a short span of seven years, the proudction has gone up more than two-fold. The company exports condoms to Canada, United Kingdom, Belgium and France In 1989-90 and 1990-91 it exported nearly 20 per cent of its total production with earnings in the year 1990-91 amounted to Rs. 287 lakh. Profits of the company has gradually increased from a paltry sum of Rs 1.53 lakh in 1984-85 to Rs 275 7 lakh in 1990-91. The main reason for this rise in profit is the reduction in the production expenses By steady modernization programmes and in-house researches production expenses which formed 60 67 per cent of the total expenses in 1984-85 was brought down to 36.65 per cent in 1990-91

While many public sector undertakings are incurring losses, HLL is earning profit for the public exchequer. Financial performance analysis indicates the strength and growth of the company

During 1990-91 there was a good turn over of capital employed and the capacity utilisation also touched the all time peak of 105 3 per cent In 1989-90 working capital turn over was high.

Another mile stone of the HLL is the launching of the production of CU-T with substantial financial assistance from UNFPA. Further, HLL has an ambitious plan to set up new research and development centre with an investment outlay of about 3 crores. This new project will go a long way in technical innovation of Latex based products. ❒

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New Uses Of Fodder Trees

M.A. Akbar

THE current interest in fodder trees is associated with its important role in Agro-forestry and sustainable rural development. In certain semi-arid and arid areas, livestock have been relying on woody perennials for at least part of their fodder for many years. These trees and shrubs can play an important role where there is seasonal shortage in pasture forage and where the forages are of poor quality. In many parts of the world fodder trees and their seeds, pods have played an important role in rural communities in the development of Animal Husbandry. With genetic improvement, fodder trees could revolutionise the agriculture of the semi-arid and arid parts of the country

Arid and semi-arid areas of India include a larger area of Rajasthan, Gujarat, Punjab and parts of Haryana, where some plants and tree leaves are useful in feeding domesticated animals Due to low rainfall, the flora is scanty and the fodder meagre. Most of the fodder plants and tree leaves are consumed green all the year round and also stocked and utilized as dry fodder. In the absence of adequate fodder supply, plants and tree leaves make very nutritive feed and assure a constant supply of nutrients essential for health. During famine and draught, which occur frequently, the animals survive on these feeds.

The livestock assets are of great significance in arid and semi-arid regions as they provide both inter-year and intra-year stability in incomes and employment and their contribution to desert ecology is substantial The livestock density is 1.08 animals per hectare and 1.86 animals per man The Western dry region is the home tract of recognised breeds of cattle (Tharparker and Rathi), sheep (Chokla and Nali), goats and camels The perennial grasses like Sewan, Dhaman, Anzan and Karad, and leguminous bushes and arid trees like Khejri support the livestock during drought. To produce a sufficient quantity of forage, there is a need to enhance fodder tree under social forestry programmes Silvipastoral practice is one such ideal system to cover the grazing lands for production of grass as well as leaf fodder. This will create more congenial agro-climatic conditions.

Silvipasture

Silvipasture is the practice of growing forage alongwith forest crops and is quite similar to agro-forestry. Recent studies have proved the utility of this system especially under arid conditions. The following is an account of suitable trees and grasses that could be grown under silvipastoral management However, the most successful of all these is the combination of subabul (*Leucaena leucocephala*) and anjan grass (*Cenchrus ciliaris*)

There is shortage of animal feed, caused either by partial or total failure of monsoon in arid and semi-arid zones Trees and shrubs which can withstand these natural rigidities to a great extent can provide nutritious fodder to the livestock population. Poplar, Subabul, Kachnar, Pakar, Neem, Bargad, Peepal, Babool, Mulberry, etc are trees and shrubs commonly found in tropics which can be lopped for fodder. Leaf fodder production from trees will provide fuel wood as a by-product which will help in meeting the fuel energy requirements of

Trees (Legume)	Grasses (hardy, shade tolerant and nutritious)
Babool (*Acacia arabica*)	Cenchrus ciliaris (*Anjan*)
Bilaithi babool (*Prosopis juliflora*)	Cenchrus setigerus (*Bird-wood*)
Israili-babool (*Acacia tortilis*)	
Khejri (*Prosopis cineraria*)	Dichanthium annulatum (*Marvel*)
Subabul (*Leucaena Lucocephala*)	Paniam maximum (*Guinea*)
Sins (*Albizzia spp.*)	

the rural population. With the production of fuel wood, cow dung can be released for application in the fields to economise on the use of fertilizers and to increase the yields.

Extensive research work should be conducted in the country so as to explore the possibilities of inclusion of tree leaves and shrubs in the complete feed of livestock.

Present Status.

In India, the forest area is about 22.7 per cent of the total land, i.e. about 75 million hectare area (mha) against a requirement of 100 mha of forest area Moreover, out of 75 mha forest area 40 mha are more or less "paper forests". In other words, only one-third of the country's are which has any relevance for agriculture, forest or pasture production is in good health, the other one-third is sick to a greater or lesser degree and the remaining one third is for all practical purposes gone out of production Therefore, the feed demand of the present populaton of domestic animals cannot be met from the presently available forest areas

It has been noted that development of wasteland has been unsatisfactory in the past. Also in agro and farm forestry schemes the beneficiaries have been mostly big farmers The social forestry projects have failed to meet the objectives of providing fuel and fodder to the rural poor since the major species raised was pulpwood The tropical forests contain more species and fewer numbers of each as compared to temperate forests Monoculture in the tropics will destroy a number of species and the environment Therefore, a host of indigenous species must be planted to restore the natural diversity of Indian forests. This will also ensure a copious supply of fuel and fodder.

To arrest ecological degradation, it is necessary to maintain a fair balance between human population, livestock and nature. Ecological sustainability involves the addition of a time dimension of infinity in development programmes based on the exploitation of natural resources. Unfortunately, today there are several threats to sustainable agriculture. Sustainable development is the 20th century passport to a future of promise for all nations. It is a passport that must be issued to all of humankind The future of agriculture, the most important solar energy harvesting enterprise, depends on the sustainable management of land, water, flora, fauna and the atmosphere.

Future scope of fodder trees in animal production: Importance of fodder trees in India's agricultural economy is obvious from the very fact that inspite of the largest bovine wealth (about half of the world's buffalo population and one-seventh of cattle population), the animal performance is one of the lowest in the world. The obvious reason for this is the lack of sufficient amount of good quality fodder The deficit is likely to increase further keeping in view the fact that the area under fodder crops is declining and animal population is increasing every year by almost two per cent. Planting of multipurpose trees in semi-arid and arid regions will improve the socio-economic condition of the rural poor on the one hand and conservation of ecosystem on the other. Shrubs and trees such as *Acacia* spp. and *prosopis* spp form palatable feed for browsing animals

Fodder banks are popularised not only by cutting and storing some fodder grown in the forest areas as well as plantations, but also by encouraging the rural poor to use upcoming fodder from closed plantation areas, thereby, discouraging grazing. Fodder banks are quite useful during lean years

Collection of pods of *Prosopis juliflora* and other trees have a good use for cattle feed. Its nutritional value and abundance help to organise large scale collection of pods followed by hulling and grinding the same for using it in cattle feed. *Prosopis juliflora* has a great use to save this region because of its hardiness as well as ubiquity and versatility. The plantation of trees like *Acacia nilotica, Grewia optiva, Leucaena leucocephala, Sesbania gradiflora,* etc. under social forestry programme will become the primary source of livelihood.

Large scale afforestation works not only provide employment opportunities but also increase the number of fodder yielding trees which become the only source during the scarcity period. Fast growing trees like *Leucaena* have a role to play in augmenting the fodder resources

A lot of research has been conducted in our country on utilization of fodder trees by different species of livestock for various production functions. Ability of trees to tap water from deep underground layers and to withstand draught is another outstanding advantage enjoyed by them over agricultural crops. Further, trees have the capacity of growing under conditions and in areas, where it may not be possible to grow conventional agricultural crops.

In order to establish a comparative picture of the potentialities of fodder trees and shrubs as also their shortcomings from the nutritional view point, scientific information on their chemical composition and nutritive value is essential. These data will be useful to the farmers and animal nutritionists in the formulation of balanced compounded feed for livestock. ❑

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Oilseeds In The Indian Economy

S.M. Mundinamani, K.N.R. Sastry and S.B. Mahajanashetti

OILSEEDS sector accounts for about 10 per cent of the nation's gross cropped area and 5 per cent of its gross product. Oilseeds account for about 10 per cent of the total agricultural production in terms of value, engaging about 3 crore cultivators in the production process and another 50 lakh persons in processing industries. Besides, a substantial workforce is employed in the various other intermediate sectors like marketing and transport.

Oilseeds produce edible as well as non-edible oils which have various uses Edible oil is one of the five nutrient elements essential for our body. Non-edible oils are used in various products like paints, varnishes, lubricants, textile auxiliaries and for illumination in households. Apart from these, oilseeds cake, being rich in protein is extensively used as a cattle feed Some oilseeds are leguminous crops which fix atmospheric nitrogen into the soil. In the face of steeply rising fertilizer prices, these crops play a crucial role in maintaining soil fertility.

India is ideally suited to grow a variety of oilseeds crops like groundnut, rapeseed-mustard, sesamum, niger, safflower, sunflower, coconut, castor and linseed. The country occupies fourth place among the major oilseed producers in the world, next to USA, China and Brazil. India is the world's largest producer of groundnut, sesamum and niger, the second largest producer of castor and safflower and the third largest producer of rapeseed-mustard, linseed and coconut. The important States producing oilseeds are Gujarat, Andhra Pradesh, Madhya Pradesh, Maharashtra, Karnataka, Uttar Pradesh, Rajasthan and Tamil Nadu Groundnut is mainly grown in Gujarat, Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra, whereas rapeseed-mustard in Uttar Pradesh, Rajasthan and Madhya Pradesh, sesamum in Uttar Pradesh and Himachal Pradesh and linseed in Uttar Pradesh, Madhya Pradesh, Gujarat, Orissa and Karnataka. Safflower is mostly grown in Maharashtra, Karnataka and Andhra Pradesh Sunflower production is concentrated in Karnataka, Maharashtra and Andhra Pradesh and soyabean comes from Madhya Pradesh, Uttar Pradesh and Karnataka.

The technological breakthrough, which ushered in a new era in the Indian agriculture during the mid-sixties, has hardly contributed to the oilseeds production. The green revolution has not touched the oilseed sector Instead, it has adversely affected the oilseeds, while it has led to substantial increase in the cereal production.

The growth rate of oilseeds production was only 2.04 per cent per annum against 5.8 per cent for wheat and 2.54 per cent for paddy during the period, 1949-50 to 1988-89. The production growth rate of oilseed production had slowed down in post-green revolution period (1967-68 to1989-90) to less than 2.0 per cent as compared to the growth rate of more than 3 00 per cent per annum in pre-green revolution period (1949-50 to 1964-65).

Demand-Supply Gap

Oil and fats constitute as essential part of human diet and the caloric requirement cannot be met without their adeqate supply. Efforts have been made to estimate the demand for and supply of edible oils towards the formulation of Eighth Five Year Plan.

Although the country enjoys the unique distinction of having the largest cultivated area under oilseeds (22 million hectares during 1988-89), the consumption level of edible oils is not only below the world average of 66 gm/day/person but also below the minimum prescribed by the Indian Council of Medical Research (ICMR) which is 18 gm/day/person The per capita net availability of edible oils has increased from about 11 gms per day in 1961 to about 17.8 gms. in 1989 Even at this low level of edible oil intake, the fluctuating levels of production of various oilseeds have forced the country to import a large qantity of edible oil to meet the demand which is growing at the rate of 5 per cent per annum The country was importing annually around 10-20 lakh tonnes of edible oil from 1980-81 to 1988-89. Only in the year 1989-90, the imports of edible oils fell to about 3 lakh tonnes as a result of acute foreign exchange shortage. The import bill of edible oils increased from just Rs. 40 lakh in 1972-73 to Rs. 1008 crore in 1984-85. Although there is a declining trend in the import of edible oils since 1984-85, the import bill during 1988-89 was as high as Rs. 727 crore.

Despite these large scale imports of edible oils over the decade, the per capita availability failed to increase significantly from year to year which is hovering around 6 to 7 kgs. per annum. Also, there has been a spurt in the prices of edible oils recently which is due to

the inadequate domestic production and drastic reduction in country's import of edible oils in the face of ever expanding demand. If this state of affairs is allowed to continue in the production of edible oilseeds, it will adversely affect the overall development of the country in general and its poor masses in particular. Thus, the edible oil economy of the country is characterised by an overall shortage in supply in relation to its demand which is the result of several problems being faced by this sector.

Basic Problem

The basic problem facing the oilseed economy is that of stagnation in yield levels on the one hand and the instability in production and prices on the other The stagnation in yield has been mainly due to lack of improved technology and want of high yielding varieties The yield potentials of major oilseed crops in India have been found to be far below the levels of their productivity in other countries. For example, the per hectare yield of groundnut in India averaged to 826 kgs during 1988-89 as against the world average of 1111 kgs The USA has achieved a yield almost 4 times higher than that of India The average yield of rapeseed-mustard is around 712 kgs/ha in India which is much less compared to the world average of 1291 kgs and far below the average yield of Poland (2451 kg/ha), Canada (1253 kg/ha) and China (1223 kg/ha) Even in the case of other oilseeds like sesamum, safflower, soyabean, sunflower and linseed, productivity in India is less than other countries

Another problem that hinders the proliferation and productivity of oilseeds is the lack of irrigation Oilseeds are generally grown as rainfed crops and the proportion of irrigated area under these crops is as low as 19 8 per cent of the total area covered under oilseeds The spread of irrigation was found to adversely affect the area under oilseeds in some States where farmers have opted to grow high-value and low-risk crops like sugarcane, paddy and wheat with the extension of irrigation facilities which resulted in either decrease or stagnation in the area under oilseeds in these States. Besides, the inadeqacy of research efforts in generating location-specific effective technology for various agro-climatic regions and inherent deficiencies in the organisational set up for promoting oilseed production have aggravated the problems in oilseed production.

Marketing of agricultural products in general and oilseeds in particular has not received as much attention as the introduction of new technology for expansion of output and yield in our country. With the gradual displacement of subsistence farming by commercial agriculture, marketing system of farm products has assumed greater importance in recent years. For the farmer, disposal of his farm produce has become as important as the adoption of new technology for improving yields in agriculture The pattern of movement of the product from farm to the ultimate consumer plays a crucial role in determining the returns to the farmer. Better returns will induce the cultivators to produce more and market a major proportion of what they produce This is more so in the case of oilseeds because of high marketable surplus which varies between 80 to 82 per cent in the case of groundnut and more than 95 per cent in the case of other oilseeds However, a strong price incentive to produce more in oilseed sector is missing in the country and most of the times the existing marketing network is found working against the interest of the farmer. The farmer's share in the consumer's rupee has been found to have declined over years Also, the present market structure of oils and oilseeds is largely controlled by a few big oil millers and traders to the disadvantage of growers. In the absence of an appropriate and efficient marketing system, the production benefits do not sustain The National Comission on Agriculture (1971) also pointed out the inadequacies in marketing of oilseeds. In this connection, it may be mentioned that there is an ample scope for increasing the farmer's income and reducing the burden on the consumers through promotion of vertical integration of production, processing and marketing of oilseeds and their products through cooperatives.

To sum up, there are numerous physical, technological, economic and institutional constraints in increasing area and productivity of oilseeds. Lack of high yielding varieties suitable for dry land conditions in which oilseeds are usually grown, risk of crop failure due to erratic rainfall, lack of institutional credit facilities, less remunerative prices and lack of institutional mechanism for integrating production, processing and marketing of oilseed are some of the major factors identified as responsible for stagnation of oilseeds economy.

As an important step towards overcoming various problems which the oilseeds sector is confronted with and making the country self-sufficient as early as possible in edible and non-edible oils, the union Government set up a Technology Mission on Oilseeds (TMO) in 1986, which chalked out a four pronged strategy to raise oilseeds production. The strategy deals with improving the technology of crop cultivation, post-harvest operation, motivating the industry to improve processing and storage systems. It also seeks to provide a strong support system to farmers through extension and input supply agencies. Two centrally sponsored schemes viz., National Oilseeds Development Project (NODP) and Oilseeds Production Thrust Project (OPTP) are operated by Technology Mission on Oilseeds These two schemes were merged into a single scheme-Oilseeds Production Programme (OPP) during 1990-91 with an outlay of Rs. 54 crore for achieving the best possible results in the sphere of production, marketing, processing, storage and other infrastructure required for boosting oilseeds production. ❐

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The Coloured Gems Industry Of Jaipur

Kusum Mehta

THE gemstone processing industry in India dates back to prehistoric times Recent archeological excavation in Kuntasi in Gujarat prove that people in ancient Harappa were skilled in making beads of agate and carnelion. Studies also indicate that the art of making intricately designed studded jewellery was pursued by Indian artisans for centuries.

Coloured gemstones offer the widest range in colour, shape size and price and they have appeal and charm for every taste These can be used to to make a large variety of jewellery with prices ranging from a few rupees to almost a lakh per piece

Jaipur, the pink and picturesque capital of Rajasthan, is the leading centre in India and perhaps in the world, for cutting and polishing of coloured gemstones, specially for emeralds. The industry dates back to the time of Maharaja Jai Singh, the founder of Jaipur, some 300 years ago.

The city undertakes the cutting, polishing and carving of the largest variety of coloured gemstones in the world which now include some diamonds too The full spectrum covers as many as 84 precious/semi-precious stones, both natural as well as synthetic. The traditional gemstones processing work done here with skill includes bead making, stringing, manufacture of objects of art from coloured stones and jewellery

The coloured gemstone industry of Jaipur engages more than one lakh persons of both sexes and all ages; usually the workers are from traditional artisan families in which lapidary skill is inherent. Most of these workers are traditionally trained at the wheel and work manually with age old tools. Since the founding of the Jaipur Gem Artisan's Training School for formal training, educated persons are also coming forward for training in lapidarying, but such training is yet to make a wide impact

Jaipur's gem industry essentially retains its cottage character. It is highly labour intensive, based on indigenous craftsmanship, and substantially of hereditary character, sometimes three generations working together Besides the full time workers, there is a sizeable number of part-timers, who earn full wages elsewere and have taken up lapidary work only as a side job.

Jaipur has lately been producing precious stones in calibrated sizes to meet modern demand Yet another development is the introduction of ultrasonios in the bead making industry-an important step towards modernisation in the tradition bound sector The city has an artisan training school A gemstone industrial park is also established with all facilities and scientific lines.

However, inspite of rich traditions of Jaipur and new steps to modernise the industry we are losing the position of eminence in the coloured gemstone trade. The reasons are paucity of roughs, use of antiquated tools and equipment, traditional marketing techniqes, non-exploitation of Indian gemstones deposits, non-adaptation of modern machinery and tools etc. For example, lapidary work in Jaipur for the most part is being done manually with the aid of simple tools and techniques some of which do not appear to have undergone any material change over the last two centuries. For these reasons we have not been able to compete well with Thailand, Sri Lanka and Isreal who have developed it into a fine art resulting in large exports. Indian exports of coloured gemstone dipped to a low ebb of Rs. 36.97 crore in 1984-85. However, the exports started increasing from 1985-86 onwards and reached the figure of Rs. 202 crore in 1991-92.

Jaipur has a large workforce of skilled artisans for cutting and polishing of coloured gemstones, and with appropriate training they can be imparted skill in the manufacture of sawn diamonds. Some major constraints coming in the way of prospective entrepreneurs are.

1. Erratic power supply
2. Factories Act Rules applicable to these units are very cumbersome
3. Erratic labour supply.
4. Inadequate infrastructural facilities such as land allotment, lack of financial assistance from financial institutions and banks, octroi etc.

If Government agencies such as RIICO, RFC, Directorate of Industries offer attractive package schemes, and find prompt solutions to the genuine problems of the industry, the industry will progress rapdily. ❑

The author is a Freelance Journalist

Book Review

PEOPLE OF INDIA-LAKSHADWEEP (VOL. XXVIII); General Editor:K.S.Singh; Published by Anthropological Survey of India; Pages:147; Price:Rs. 120

Under its projected people of India series, the Anthropoligical Survey of India has brought out this 28th volume on Lakshadweep.The enthrographic survey of Lakshadweep Islands was taken up for the first time and seven tribal communities were scientifically identified and studied in collaboration with local scholars To provide an authentic foothold to these study based results, a workshop was held on the Islands in November, 1988,

Lakshadweep Islands also offer a paradise in the Arabian sea to the aesthetic sense of any visitor, as they continue to maintain their inbuilt, compactness of eco system It has been thoroughly identified that the Islands have coir-strong social and cultural bonds with Kerala, besides having their exclusive identity enriched by the influence of Islam They are the home land of matriliny, which has adapted Islam

In this context, there is no doubt that as the state-coordinator_ Lakshadweep, Shri V.K Tandon has made all possible efforts to collect appropriate and authentic data about the land and the people of Lakshadweep Since the 147-page volume has been launched by an Introduction running into 62 pages, it is evident that no professional editorial processing was invited at the manuscript stage The entire subject-matter richly deserved a well-chiselled Introduction and a chapter-wise treatment so as to weed out duplications.

Subject-wise selection of apt coloured photographs could well invite global attention in respect of the prestigious publication.

Desh Bandhu

VALUE AND DISTRIBUTION IN NEO-CLASSICAL AND CLASSICAL SYSTEMS by G.C. Dacosta_Himalaya Publishing House, Ramdoot, Dr. Bhalerao Marg, Girgaon, Bombay-400004; pages 446 price Rs. 225.

The relevance of neo-classical theory centres round the efficient allocation of the scarce resources of society It emphasizes the interdependence of markets and equilibrium and defficiency of an economic system So, towards the end of the nineteenth century economics became a study for governing the efficient allocation of resources Prof Dacosta aptly maintains that neo-classical value theory is micro in character, the emphasis is on each economic agent, consumer or producer Briefly, it is a classless society, the behaviour of consumer and producer follows the same symmetrical pattern The consumers with given endowment of goods, their preferences and market prices attempt to maximise their utility while the producers with given technology and the market prices of inputs seek to maximise their profits

In neo-classical theory, prices are the result of the interaction between demand and supply. As Jevons with his concept of marginal utility established the link between exchange value and use value, to him, there was no such thing as "intrinsic value". The consumer with his expectations and preferences become the cardinal point for determination of prices. In Walrasian's general equilibrium version of neo-classical theory, the focus was on market prices. Marshall, with his explicit use of time, investigated both market and 'normal' or 'long run' prices. His principles attempted to provide a link with classical theory by bringing back and reiterating the role of supply in neo-classical analysis of the value

The theory is not free from criticism. It is known that capital and profit are interlinked. Also, inverse relation between capital and profit has been shown valid only under very restrictive assumptions. Further, critics question the neo-classical production function Finally, distribution of income in neo-classical theory bases the demand for the services of the factors of production on the demand of finished goods Hence, Mr Dacosta's assessment of the problem is quite logical

In the classical theory of values and distribution the author's extensive coverage of Smith, Ricardo and Marx speak of his erudition According to Adam Smith value of a good is its utility or power to purchase The former, value in use, the latter value in exchange which with his well known example of dear and the beaver he explained. The entire produce of labour belongs to the labourer. Ricardo wanted to see distribution and its effect on accumulation In his simple model, corn was both the input and the output, so no problem of surplus.

The theory of value, for Marx, was the key to unravel the nature of capitalist society. He emulated Ricardo. But he observed that in capitalist economies commodities do not sell at labour-embodied values, but at 'prices of production' Prof. Dacosta's analysis of the

transformation problem of values into prices of production is commendable. The chapter on Straffa's system is quite illuminating. Straffa subscribed to the classical tradition of viewing value in terms of price of production.

Finally in neo-classical theory, the market process determine the distribution of income, whereas in classical theory, the latter is the result of social institutions_viz ownership of property and social relations. Each theory has its merits and demerits. While judging pros and cons of the two systems it can be argued that both have strong and weak points and hence such indepth analysis is reassuring.

The book will be of immense help to the researchers, academicians and students

S C Lahiry

PLANT PATHOGENS: By Dr. R.S. Singh, Oxford & IBH Publishing Co. Pvt. Ltd., pp. 216, Price: Rs. 125/-

The book under review depicts in first three chapters all aspects of phytopathogenic bacteria, morphology, reproduction and salient features of Procaryotic Cell Chapter 4 deals with taxonomy of Bacteria. Chapter 5-10 present Taxonomy & Classification, Habitats Isolation Technique, Selective Media & Identification of different gewra, viz. Psendomonas, Xanthomonas, Agrobacterium, Erwinia and Corymform Bacteria. Good information has been given on the Fastidious Prokaryotes which include walled fastidious bacteria (i.e. RLB) and wallless prokaryotes (i.e. MLO) in Chapters 10 & 11. The book contains a comprehensive bibiliography which covers 513 references.

Dr. Devendra Thakur

THE POLITICAL ECONOMY OF TERMS OF TRADE: By Bhalchandra L. Mungekar, Himalaya Publishing House, Bombay; 1992; 220pp; Rs. 140/.-

Terms of trade between agricultural and non-agricultural sectors have become a topical issue after the government's decision to increase the procurement prices of agricultural commodities substantially. The author is however, not of the opinion that improvement in terms of trade for agriculture is an unmixed blessing to the economy. Favourable terms of trade benefits the farmers with a marketable surplus. While the capitalist class, the industrial workers and agricultural labourers stand to loose according to the author.

The capitalist class would try to reduce the seemingly adverse impact of terms of trade on their net incomes by raising the prices of products they produce Similarly, organised industrial workers, though adversely affected, may succeed in pressurising the capitalist class in such a way that their real wages do not fall. But the vast body of urban workers working in the informal sector and even a large number of small and marginal farmers who are net purchasers of foodgrains remain exposed to adverse impact of favourable terms of trade. The plight of agricultural labourers is still worse according to the conclusions of the study

The book starts with a comprehensive review of the debate on agricultural price policy in India The review covers issues such as PL 480 imports, zonal restrictions on movement of goodgrains, cost of production and fixation of procurement prices and inter sectoral terms of trade.

The author has made independent estimates of net barter and income terms of trade between agricultural and non-agricultural sectors for the period extending from 1952-53 to 1980-81. The methodology used is clearly elaborated in chapter 3 of the book. The study does not extent to the period after 1980-81 and one will be disappointed if he is looking for the more recent trends.

Regression analysis conducted by the author revealed that terms of trade for agriculture tends to be inversely related to levels of agricultural production and directly to the volume of money supply. The net effect of these two would be the ultimate determinent of the direction in which the terms of trade would move.

The study also indicates that a favourable terms of trade for agriculture does not have much impact on the levels agricultural production. The author is, therefore, led to conclude that the major stimulant for expanding agricultural production must come basically from the productivity raising/cost reducing agricultural technology and structural change The policy of merely resorting to higher agricultural prices accompanied by stagnant technology is most unlikely to accomplish its desired objective, says the author. Emphasis should, therefore, be laid on expansion of irrigation facilities, use of electricity in agricultural operations and improvement in infrastructural facilities such as extension services, availability of timely credit and marketing of agricultural products

The book which is a revised version of the author's Ph D. thesis is undoubtedly of great topical interest in the context of increased commercialisation of agriculture and new liberalisation policies As M L. Dantwala has mentioned in the foreword, the book should be a compulsory reading for students of agricultural economics as the author has presented a detailed account of the ongoing debate on the subject, and recorded the findings of carlier studies alongwith his comments.

P.V. Rajeev

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New Challenges In Science & Technology

Dr. S.Z. Qasim

SCIENCE and Technology (S&T) have created phenomenal impact in shaping the lifestyle of man throughout the world In every sphere of human activity or human endeavour, S&T play a crucial role and it is because of science and technology that the earth is often being referred to as "global village"

In 1947, when India became a sovereign Independent State, most of the consumer goods were imported This was the starting point of our developmental efforts In 1951, when the First Five Year Plan was launched, our emphasis was on import substitution and by the end of Seventh Five Year Plan, that is, after 40 years of planned development, we have reached a stage when we can claim to produce practically everything we need within the country Thus the regime of planning, which began four decades ago with a glorious vision of Pandit Jawaharlal Nehru's resurgent India, is striding firmly on the path of progress. In this context the use of S&T as an instrument of growth and social change becomes an important strategy Therefore, to derive maximum benefit from limited resources, S&T must be brought to the main theme of economic planning in the agricultural, industrial and services sectors

Our accomplishments in high technology areas such as nuclear and space sciences, electronics and defence research have been highly commendable Similarly, in other sectors such as agriculture, biotechnology, oceanography, engineering, medical and many other sciences, we have made remarkable progress. Our R&D inputs in the industrial developments have not been very spectacular, but we do have evolved many technological packages which are either being commercialised or are on the verge of making a breakthrough Furthermore, in the newly emerging key areas such as microelectronics, informatics, telematics, new materials, renewable energy sources, our efforts have been praiseworthy A large base has been created in all the areas of S&T including the industrial research which must be expanded, modernised and utilised fully

Today, in spite of all the liberalised policies and other measures adopted by the world community, the question arises as to whether India would be able to break the technological barriers created by the advanced countries Thus India may find an access to only such technologies which are becoming obsolete in the western countries The same story is being repeated for our space programme The example of cryogenic engine is too well-known to all of you.

New Horizons

The criteria for selecting challenging areas of technology should be set forth explicitly based on the demand from the industry and the services sectors while at the same time taking into account that the industries are gradually shifting from the high-tech side to multi-tech side Of the various facets where cross technology interactions are fast developing, mention may be made of microelectronics, fiber optics, lasers, biotechnology, computer-integrated manufacturing of instruments, new material etc

Microelectronics This technology has grown highly sophisticated in just one decade Microelectronics is an interactive technology having strong linkages with materials technology, testing equipment, precision manufacturing etc The integration of circuits has reached the VLSI (very large scale integration) level (1000 to one lakh components per chip) in the mid 80s and currently, the levels of integration has touched 100 million devices on a chip in the 1990s The evolution of higher scales of integration has brought down the prices of the circuits drastically

In the computing systems, a high bit microprocessor which consists of one or a few large scale integrated (LSI) circuits performing all mathematical functions along with the control unit is also a fast improving area 1990s will see 256 bit microprocessors and optical processors which would be able to integrate communication and computing in an astonishing fashion

The technology gap between India and the developed countries in the field of microelectronics is increasing, be it in component design, chip fabrication or system development based on chips etc

Semi Conductor Complex Ltd. (SCL) and Bharat Electronics Ltd (BEL) are the only two major organisations engaged in manufacturing of a few microelectronic components.

Fibre Optics Rapid developments in fibre optics technology in the last one and half decade have led to increasing commercial availability of a range of systems and devices. It has opened up avenues for a newer mode of communicating voice, data, picture, text, replacing coaxial cable or line of sight path

In India, since the last year of the Seventh Plan, transmission network, based on optical fibre systems, have started emerging as one of the important routes for national communication About 30% of the current transmission projects are based on optic fibres In the last 3 years, the on land connectivity has been of a high order. Light as a carrier can carry as high as 10,000 gigabits/sec of the data which is equivalent to a more than a billion telephonic conversations Like all communication links, the fibre optics links also demand design and development of transmitters, transmission media and receivers Systems such as the local telephones have a large number of terminals (transmitters and receivers) and operate over relatively short distances Such systems too can be hybridised with light wave technology, using a light source with simple inexpensive coupling mechanism-known as optical interconnects, while wide band long haul communication links would require high power coherent laser sources

Telecom Sector The demand for new telephone connections has been increasing during the past few years and in spite of providing connections at a fairly rapid rate, the waiting list is growing over the years.

Technology in telecommunications is advancing very fast With the merger of computers and telecommunications, new forms of services are becoming available which could not be even thought of a decade ago such as video-conferencing Major part of the cost of development of new telecom system is the software and we have adequate expertise in this field However, in the hardware areas we are still lagging far behind

Lasers: The invention of lasers around 1960 has been one of the landmarks in the field of technological advancements Lasers brought in several new applications such as optical communication, optical storage, optical computing and their tremendous use in medicine and surgery.

Among their applications, opthalmology was the first area of medicine where lasers were found to be extremely useful Today, lasers are finding a wide use in almost all the areas of medicine including surgery, diagnosis etc In the surgery of tissues, lasers have established their suitability in the high precision manipulation Of late, the laser angioplasty has been developed and it is being increasingly practised Lasers have become indispensible for their use in cancer treatment

In the industrial sector, lasers have made their mark and are being regularly used for alignment and surveying, for welding drilling, glazing, metal cutting, cladding and for non-destructive testing Laser guided printers are perhaps the fastest printers available today

Biotechnology Biotechnology is the application of scientific and engineering principles to the processing of materials using biological agents to provide goods and services of economic value While biotechnology is already being applied in the production of drugs and pharmaceuticals, in the effluent treatment and agricultural practices, modern biotechnology offers great potential for improving the existing processes and developing newer products. Similarly, in various areas of human health care, agriculture, animal husbandry, aquatic life forms, fuels, fodder and biomass as well as energy and environmental protection, biotechnology is becoming indispensible.

In the health care areas, biotechnology has the potential for producing more effective vaccines against various viral, bacterial and parasitic diseases and developing diagnostics for quick and timely detection of diseases and physiological conditions of the body. Already genetically engineered hepatitis-B vaccines, recombinant human insulin, recombinant human growth hormones and recombinant interferons are commercially available In India, the recombinant hepatitis-B vaccine is being marketed

New Materials

Advances in material science and engineering form the base of nearly all technologies that lead to economic productivity Industrial technologies, biomedical science, electronics weapons systems, transportation, energy conversion are all dependent on new materials These bring in unique or previously unattainable properties of materials to practical reality But increasingly, materials research is being focussed on advanced methods of processing and fabricating the existing materials so as to achieve their characteristics using design parameters

Development of the jet engine during the Second World War provides one example. When the first aircraft turbine was produced around 1940, it just barely ran and did not last very long. To make it into a real propulsion system, it was necessary to undertake an intensive materials development programme for quite sometime The development of higher temperature materials set rolling the development of the aircraft turbine, which in turn has paced the technology of land-based turbines for power generation

Many important improvements in materials are also being pursued in smaller components and systems For example, ceramic-based catalytic com-

bustors, similar in concept to those used in most automobiles may provide a solution to nitrogen oxide emissions in gas turbines Porous ceramic filters for hot gas clean up may form a key element of pressurised fluidised-bed coal plants

Space

Significant earth bound applications of spacecrafts are being realised with the launches of INSAT satellite series and the IRS remote sensing satellites viz IRS-1A, 1B in the last one decade These applications include communications, meteorology, resources prospecting, disaster management etc Their developments have a direct impact on our socio-economic advancement

The communication revolution introduced by the INSAT system has generated a great and unprecedented demand for the expansion of the vital services in the country like long distance communication, nation-wide TV, data relay, radio networking, meteorological services, computer networking etc The successful launch of INSAT 2-B has opened new avenues in telecommunication in providing new channels for Door Darshan and many other value-added services

Atomic Energy

Through sustained R&D efforts, a near total capability has been developed in the field of nuclear energy, covering the entire nuclear cycle including exploration, mining, extraction, purification and conversion of nuclear materials, production of fuel elements for reactors, design and construction of power reactors and instrumentation control for units of 235 MW capacity, in the production of heavy water, health and safety instrumentation, reprocessing of spent fuels and in the production and use of radio-isotopes

Apart from the generation of electricity, which is recognised as the main contribution of nuclear energy for peaceful purposes, there are other spin-offs that are increasingly making vital contributions in the field of medicine, agriculture and industry. Mention may be made of radioisotope gauges used for checking gas filling or powders in packages, leak detection in buried pipes, silt movement in navigational channels, detection of wear and tear rates in engines, food irradiation etc

Ocean Research

Among the many challenges that face mankind in the remaining decade of the twentieth century, two stand out as of crucial importance for the very survival of man One is the ecological problem of man's ability to cope with an environment of his own creation, which now threatens to overwhelm him and the other is the future use of the ocean which must be done wisely

As time passes, our dependence on the sea is rapidly increasing Since ancient times, the sea has been used by man for two main purposes-fishing and shipping, but the recent discovery of offshore oil and gas, other minerals, chemicals, drugs and energy generation has convinced every one that some of the biggest treasures of the world lie hidden in the sea Thus the ocean is called "our last frontier" and mankind is looking towards the sea as the future hope The old saying that "the country which controls the sea, rules over the earth", has proved to be true beyond doubt

One of the areas in which the most spectacular advances are expected to be made by man is the ocean sector Coastal and offshore activities are rapidly on the increase in India During the last 12 years, our country has made notable advances in the field of ocean development, which have enhanced our prestige considerably among the other nations of the world Large investments are being planned for the exploration and exploitation of various ocean resources such as food, chemicals, minerals, energy, transportation and tourism to improve the socio-economic conditions of the vast population. The offshore construction and operational activities have been rapidly increasing largely because of the exploration and exploitation of oil and gas.

Conclusion

Because of the unprecedented explosion in the scientific and technological knowledge in the developed countries, the technological and economic distance between the rich and the poor countries is widening, rather than becoming narrower Developments in new frontier technologies, particularly telecomunications, microelectronics, laser, fibre optics, biotechnology and new materials, are ushering in a new industrial revolution. Their impact on the productivity, social organisation, wealth and power of the nations may be as profound as that of the steam engine, electrification and the internal combustion engine were in the earlier generations The exploitation of modern scientific knowledge and technological advances is now the main source of economic growth in the developed countries The new technologies have far reaching implications for the comparative advantage of countries in the international competition for global markets Developing countries cannot remain silent spectators while this new industrial revolution sweeps the industrialised world

It is to the credit of our planners and those responsible for the formulation of India's science and technology policies that they have grasped the far reaching implications of the technological developments which are now on the horizon The Seventh Five Year Plan has witnessed some highly encouraging trends in the development of national capabilities in the new frontier technologies However, the full utilization of the economic potential of the new technologies must be fully realized in the Eighth and subsequent Plans ❐

Based on the fifth Dr. Nayudamma Memorial Lecture delivered by the author

Another Step In Financial Sector Reforms

Mahesh Prasad

THE busy season Credit Policy, announced by the Reserve Bank of India (RBI) in the second week of October, shows the sincerity of the Central Bank in carrying forward the programme of financial sector reforms The policy, as announced by the RBI Governor, Dr C Rangarajan, has accelerated the process of reduction in Statutory Liquidity Ratio (SLR), while maintaining status quo in Cash Reserve Ratio (CRR), raised the limit of mandatory consortium lending, increased the line of credit to NABARD and relaxed the guidelines for the issue of commercial paper by companies and certificate of deposit by banks. The purpose of the new policy, as Dr. Rangarajan has aptly put it, is to support "the revival of output" by making larger credit available to the industrial and agricultural sectors of the economy. Although no further cut in interest rate structure has been affected, the RBI Governor drew the attention of bankers to the discretion left to them in determining the rates above the minimum stipulated and said borrowers with higher credit rating should be charged the minimum stipulated rate

The credit policy brings about a sharp reduction in SLR from 37.25 per cent to 34.75 per cent and in incremental SLR from 30 per cent to 25 per cent, augmenting the lendable resources of banks by Rs 4,150 crore. It may be recalled that the loan period credit policy, announced in April, had reduced SLR in four phases from 37.75 per cent to 36.75 per cent While the first two phases have already been implemented the remaining two phases would be superseded by measures proposed in the busy season credit policy Such a sharp reduction, while makes available Rs 3,050 crore in lendable resources over and above Rs 1,100 crore attributable to the remaining phases of reduction in SLR, has no doubt been welcomed by associations of trade and industry If CRR has been left untouched at 14 per cent, it is because monetary expansion (M3) had overshot the target in the first half of the year. The conditions were thus not ripe for lowering CRR Instead, as some commentators have pointed out, there was a strong case for hiking CRR, a prescription from which RBI has rightly desisted

Industry and trade have, however, been disappointed that a reduction in interest rate had not been affected This, they contend, had become appropriate in the context of successful reigning in of inflationary pressures While time has not been found ripe for total deregulation of interest rates, the RBI Governor urged bank chief executives to adopt objective and rational criteria for deciding the range of rates between the minimum lending rate stipulated bythe RBI and the higher rates charged in the case of advances over Rs 2 lakh. In this context, he said that borrowers with the higher credit rating should normally be provided credit at the minimum stipulated rate, while higher rates should be charged depending upon higher credit risk. Warning banks to avoid charging unduly high rates for commercial advances, the Governor said this might prove counter productive Moreover, companies have now been given the freedom to tap funds through the issue of commercial paper (CP) for maturities between three months and less than one year The minimum networth requirement for the issue of CP has been reduced from Rs 5 crore to Rs. 4 crore. The same reduction is being allowed in the case of working capital (fund-based)

Removal Of Restrictions

Another step towards deregulation of interest rate structure is the removal of all restrictions on the issue of certificate of deposits by banks, which can issue them depending on their requirements Funds raised through CDs are outside the administered interest rate structure of RBI and technically a bank may raise all its deposits through CDs and hence not be bound by RBIs interest rate directives Moreover, RBI has decided to withdraw the stipulation relating to the minimum rate of interest of 14 per cent per annum on Inter-Bank Participation with risk sharing (IBPS) Accordingly, with effect from October 12, 1993, the issuing banks and participating banks are free to determine the rate of interest on IBPs with risk sharing.

The corporate sector has also welcomed the raising of the limits for obligatory consortium lending from Rs. 5 crore to Rs. 50 crore in multiple lending

arrangements This is because for companies, whose total working capital needs are below Rs 50 crore the compulsion of entering into a consortium has been done away with Companies can now reach banks of their choice or decide to deal with one bank If they do not want to do either they can go in for a syndicated arrangement. The difference between a consortium and a syndication is that whereas in a consortium the parties charge an identical rate of interest, in a syndication there is no law binding each participant to charge a uniform rate of interest The raising of the threshold limit for obligatory consortium arrangement would imply that it would be applicable to only 76 large borrowal accounts instead of the earlier 934 As a matter of fact several bankers feel that raising the limit of obligatory consortium lending is the first step towards the dismantling of the system

The RBI has also been liberal in extending support to Rabi agricultural operations by deciding to further enhance the limit under the General Line of Credit (GLC) for short term seasonal operations provided for the National Bank for Agricultural and Rural Development (NABARD) by Rs 400 crore from Rs 3,300 crore to Rs 3,700 crore According to RBI, the enhancement of the limit under GLC will provide additional resources of Rs 1,000 crore to NABARD to support agricultural activities during the nine months between October and March. Food credit is estimated to grow by Rs 1,500 crore during the period The fund position of NABARD is, however, reported to be comfortable with its senior executive reportedly asserting that it does not immediately require any short term funds Further, bank advances against wheat, cotton and *kapas* to all borrowers would be exempted from all provisions of selective credit controls The minimum margins on bank advances against paddy and rice would be reduced across the board by 15 percentage points and the level of credit ceilings for the two items would be raised to the same extent. Similarly , in the case of oilseeds t and vegetable oils minimum margins have been raised by 15 percentage points across the board.

Boost To Export

In the busy season credit policy, RBI has also endeavoured to make more credit available to the export sector, while reducing rupee export refinance limits of banks by Rs 1,970 crore and the dollar denominated post-shipment refinance limits by Rs 500 crore. According to RBI, the change in the dollar denominated refinance facility will encourage the new scheme of rediscounting export bills abroad and as such increase the overall credit available to the export sector As per the changes brought about in the export credit refinance, the base year for the existing two-tier export credit (rupee) refinance formula would be brought forward by one year Banks would be provided export credit (rupee) refinance to the extent of 60 per cent of increase in the outstanding export credit over the monthly average level of 1989-90 upto the monthly average level of 1990-91, plus 100 per cent of the increase in the monthly average level of outstanding credit in 1990-91 Under the refinance facility against post-shipment export credit denominated in US dollars, banks would be eligible for export refinance limits equivalent to 90 per cent of such outstanding export credit provided by banks as against 100 per cent. According to RBI, while encouraging the rediscounting of export bills abroad, the new scheme is unlikely to have any adverse impact on export credit in view of the low utilisation of refinance limits because of the comfortable liquidity position of banks. Further, pre-shipment export credit in foreign currencies will now be available to exporters for financing domestic inputs of goods exported. The proposed scheme would provide to Indian exporters credit at internationally competitive rates of interest

Priority Sector Lending

The eredit policy has also brought about a major recasting of the concept of priority sector.

Under the overall stipulation of priority sector credit of 40 per cent of net bank credit and the sub-target of 18 per cent prescribed for agriculture lending, direct and indirect categories of advances to agriculture have been clubbed However, lendings for indirect agriculture should not exceed one fourth of the total agricultural lending target of 18 per cent of the net bank credit. All advances granted by the banks to small scale industries as per the revised definition of the government–investment in plant and machinery upto Rs 60 lakh and Rs 75 lakh in the case of ancillary and export-oriented units–could be treated as priority sector advances Within the allocation for small scale industries, a separate stipulation has been made for smaller units Banks have been warned that failure to achieve the stipulated level of priority sector lending could invite bank specified policies, such as, raising of reserve requirements or withdrawal of refinance facilities

Other Changes

In some of the other changes, banks may provide credit to hire purchase and equipment leasing companies upto four times the net owned funds as against three times at present The bank lending to these firms has to be within the overall ceiling of borrowings by these firms of ten times of net owned funds The ceiling for investment by banks in bonds and debentures of public sector undertakings (PSUs) has also been raised from 1 5 per cent to 5 0 per cent of incremental deposits Interest rate on deposits under Non-Resident (External) Rupee Accounts (NRE Accounts) have been reduced by one percentage point The exchange guarantee for the Foreign Currency (Non-Resident) Accounts Scheme (FCNR Scheme) for maturity of one year and above, but less than two years would be withdrawn with effect from October 12, 1993 Authorised dealers would, however,

(Continued on page 21)

Foreign Direct Investment Policy And Response Of Foreign Investors

INDIA'S policy on foreign direct investment (FDI) has been to permit foreign private interests on a selective basis in areas beneficial to the Indian economy Although there is no separate law governing the policy on FDI, it has generally been guided by the industrial policy statements and Five Year Plans from time to time The basic approach to FDI was first laid down in the Industrial Policy Statement, 1948 The thrust of the policy was to welcome foreign private investment on a selective basis while maintaining majority ownership and control in Indian hands

The First Five Year Plan (1951-1956) elaborated that foreign capital should be routed through high priority areas During 1961-1970 greater emphasis was laid in channelising foreign capital to areas which contributed to employment generation and where more investment was required to achieve the plan targets The Government also issued illustrative lists of industries in which FDI and technical collaborations would be allowed

During 1971-1980, with a view to helping the balance of payments problems, the Government liberalised the guidelines for foreign investment where entities agreed to undertake exports as a major share of production In such cases, it was decided to allow majority foreign equity participation

During 1980's to promote investments by non-resident Indians (NRIs) and entities owned predominantly (60 per cent or more) by NRIs and Overseas Corporate Bodies (OCBs), the Government granted special incentives for NRI/OCB investment into India In general, NRIs/OCBs were allowed to invest freely in Indian companies without the need for a technology transfer 100 per cent foreign equity was permitted if the investment was on a non-repatriable basis

In July 1991, as part of the new industrial policy, it was announced that the RBI would accord automatic approval for FDI up to 51 per cent foreign equity in 34 high priority areas in engineering, chemicals, food processing and tourism sectors provided that the foreign equity covers fully the imports of capital goods, and outflows on account of dividend payments are balanced by export earnings over a period Subsequently, the requirement for balancing dividend payments was dispensed with except for 22 consumer goods industries The facility was also extended to NRIs and OCBs in which NRIs possess a predominant share Foreign companies and investors have also been allowed to own offices, buy real estate and launch new companies

Multinationals setting up manufacturing facilities and peripherals as 100 per cent export-oriented units (EOUs) are allowed to sell up to 30 per cent of their production in the domestic tariff area (DTA) and 100 per cent EOUs engaged in agriculture and allied activities are allowed to sell up to 50 per cent in DTA. Foreign companies setting up component manufacture are allowed to sell up to 35 per cent of their production in DTA. The Government has framed guidelines for setting up electronic hardware technology parks (EHTPs) to make them an attractive investment proposition for global electronic giants

Foreign ownership of 100 per cent is allowed in the power sector, 100 per cent Export-Oriented Units (EOU) and selected high technology industries such as hydrocarbon sector, exploration and development, production, refining and marketing of oil and gas. Automatic permission is to be given for foreign technology agreements up to certain ceilings covering the same high priority areas No Government permission is necessary for hiring foreign technicians and full powers have been delegated to the RBI Existing companies can also raise foreign equity up to 51 per cent subject to certain prescribed guidelines. Higher foreign equity up to 100 per cent in 34 specified areas and percentage of foreign equity for others is determined on a case by case basis

NRIs and overseas corporate bodies (OCBs) predominantly owned by them are also permitted to invest up to 100 per cent foreign equity in high priority industries with full benefits of repatriation of capital invested and income accruing thereon Automatic approvals are accorded by the RBI subject to

certain parameters.

As a consequence of liberalisation, foreign investment upto 51 per cent foreign equity is automatically permitted by the RBI. Other proposals are considered and approved on merits by the Cabinet Committee on Foreign Investment (CCFI) on case by case basis. In addition, a Foreign Investment Promotion Board (FIPB) has been created in the Prime Minister's Office to invite, negotiate and facilitate mega-investments from international companies on the basis of commercial viability and mutually acceptable profitability. The Government has also set up an Empowered Committee under the chairmanship of the Finance Minister to consider and approve FDI cases involving total investment upto Rs 300 crore. FDI projects involving higher investment outlays would continue to be approved by the CCFI.

During 1992-93, further initiatives as indicated below were taken to foster foreign investment in India (a) Existing companies have been allowed to raise foreign equity up to 51 per cent at prices determined by the shareholders. (b) The general condition of dividend balancing has been withdrawn for items other than consumer goods w.e.f. June 26, 1992 (c) Disinvestment of equity by foreign investors has been allowed at market rates on stock exchanges w e.f. September 15, 1992. (d) India has signed on April 13, 1992 the Multilateral Investment Guarantee Agency (MIGA) Protocol and has become its member along with other countries for the protection of foreign investments. (e) Provisions of FERA have been liberalised through an ordinance dated January 9, 1993 as a result of which companies with more than 40 per cent of foreign equity can operate like any other Indian company. (f) Foreign companies have been allowed to use their trade-marks on domestic sales w.e.f. May 14, 1992.

The Government has allowed reputed Foreign Institutional Investors (FIIs) including pension funds, mutual funds, asset management companies, investment trusts, nominee companies and incorporated/institutional portfolio managers to invest in the Indian capital market subject to certain conditions. FIIs investing under the scheme enjoy a concessional tax rate of 20 per cent on dividend and interest, 10 per cent on long-term capital gains and 30 per cent on short-term capital gains.

Indian corporate sector has also been encouraged during 1992-93 to access global capital markets through Global Depository Receipt Mechanism (GDRM) as described below: (a) Foreign investors can invest in Indian companies through GDRM route without any lock-in period for equities. (b) These receipts can be listed on any of the overseas stock exchanges and denominated in any hard foreign currency However, the underlying shares would be denominated only in Indian rupees. (c) Private placement with US investors is also permissible in accordance with the US Securities Act as per international practice. (d) Short term capital gains are taxable at the rate of 65 per cent alongwith business income. Long-term capital gains (computed on holdings for more than 12 months), dividends and interest are taxable at the rate of 10 per cent.

Operating Environment

FDI can be in the form of cash or capital goods and there is no minimum cash requirement. Branch operations are permitted only in a few specified service industries such as banking, shipping, airlines etc. or export-oriented ventures. Certain Industries, as mentioned in the industrial policy, require licence by their nature, while others require such a licence only if located in the proximity of a large city. This licensing applies uniformly to domestic and foreign investment. Also certain products are reserved for the small scale sector and large undertakings are ordinarily permitted equity participation upto 24 per cent of total shareholding in these

There is no restrictions regarding access to domestic markets or use of foreign brand names A work-permit as such is not required for expatriate

Table-1

Foreign Collaboration Approvals–Comparative Figures

	1990	1991	1992	1993 (upto July)
Total No of Foreign Collaboration approvals by				
i) SIA	666	760	585	177
ii) RBI	–	188	736	404
iii) FIPB	–	2	199	230
TOTAL	666	950	1520	811
No of FC approvals involving foreign investment				
i) SIA	194	246	243	36
ii) RBI	–	41	251	135
iii) FIPB	–	2	198	230
TOTAL	194	289	692	401
Total amount of foreign investment involved (Rs in Billions)				
i) SIA	1 2	3 6	4 2	1.4
ii) RBI	–	1 4	7.8	2 3
iii) FIPB	–	0 3	26 9	45 1
TOTAL	1.2	5.3	38.9	48 8

Note. 1 Billion= 100 Crore
SIA–Secretariat for Industrial Approvals
RBI–Reserve Bank of India
FIPB–Foreign Investment Promotion Board

employees, but permission to stay is required from the Government where the period of stay is more than three months. RBI permission is also required to employ expatriates where remittance of salary in foreign exchange is envisaged

India has no specific legislation governing FDI other than the Foreign Exchange Regulation Act (FERA) which restricted transactions in foreign exchange and other activities in India of non-residents including foreign companies and of locally incorporated companies having more than 40 per cent foreign equity Provisions of FERA have been liberalised through an ordinance dated 9 January 1993 as a result of which companies with more than 40 per cent of foreign equity are also now treated at par with fully Indian owned companies

Repatriation Issues

India permits free repatriation of profits after payment of the applicable taxes for all approved investments other than in few specified industries In these consumer goods industries, repartiation of profits is allowed only out of net foreign exchange earnings during an initial period of seven years from the commencement of production. However, there are procedural requirements for obtaining RBI approval for repatriation of branch profits or dividend by an Indian company which has more than 40 per cent of equity On disinvestment, capital may be repatriated subject to the sale price being considered reasonable by the RBI and payment of applicable taxes.

Certain Government agencies like the Indian Investment Centre play a promotional role in attracting foreign investment to India An investment Promotion and Project Monitoring Cell have also been set up in the Department of Industrial Development to provide information/clarifications and to assist entrepreneurs In some states, state level agencies assist investors by coordinating the granting of requisite clearance at the state level.

For locally incorporated companies, closely held companies are subject to an effective rate of tax of 57.5 per cent (basic rate of 50 per cent plus surchage at 15 per cent) and widely held companies are subject to an effective rate of 51.75 per cent (basic 45 per cent plus surcharge 15 per cent). Dividends paid by these companies are taxed again in the hands of the recipient, though inter-corporate dividends are exempted under certain conditions. Foreign branches are taxed at a flat rate of 65 per cent on branch income. There is no withholding tax on remittance of branch profits but evidence of payment of applicable tax is required Depreciation is allowed on all industrial buildings and machinery at specified rates for all types of business.

Certain specified industries, such as, oil exploration, etc are eligible for lower rates of corporate tax Government also allows certain exemption for exports profits and exemption or refund of customs duties paid for raw materials, components and capital goods imported for the manufacture of exported goods Duty drawback on domestically procured inputs is also available for exports and the Duty Drawback Scheme has been considerably simplified and widened in scope

An Indian company is taxed on its worldwide income A foreign company is taxed only on income that is accrued in India or that is deemed to accrue in India Double taxation of foreign income is avoided by means of foreign tax credits

Personal Income Tax

A resident (staying for more than 182 days in an year) is taxed on his world-wide income if he is also ordinarily resident in India (e g , if he maintains resident status for 9 out of 10 preceding years). A non-resident is taxed only on income that is received in India Though the entire remuneration is taxable, concessional treatment is accorded to leave passage, reimbursement of medical expenses and benefits received in kind, such as, company-leased flat, car, furnished housing, utilities etc A standard deduction is available to all employees equal to one-third of salary or Rs 15,000 whichever is less The taxable incomes upto Rs. 30,000 are exempted, and marginal rates for higher incomes are 20 per cent for incomes between Rs 30,001 and Rs 50,000, 30 per cent for incomes between Rs 50,001 and Rs. 100,000, and 40 per cent for incomes exceeding Rs 100,000 A tax deduction is allowed at the rate of 20 per cent on all eligible savings subject to a limit of Rs 60,000 savings per annum A surcharge of 12 per cent on net income tax is payable (except for nonresidents) where taxable income exceeds Rs. 100,000

Withholding Taxes

Income of foreign companies by way of dividends, interest, royalty and other technical know-how fee taxable in India is subject to withholding tax rates as indicated below

India has tax treaties with about 38 countries including Australia, Canada, France, Germany, Korea, Italy, Japan, U K and U S A

Capital Gains Tax

Capital gains are computed by deducting an inflation indexed original cost from the sales price of assets In the case of non-residents, no indexation for inflation is available but protection is

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Countries	Dividends	Interest	Royaloties/ Technical fees
Non-Treaty Countries	25%	25%	30%
Treaty Countries	10-25%	10-25%	10-30%

Remembering Jallianwala Bagh And The Quit India Movement

P.K. Bandyopadhyay

WHEN a country achieves freedom its leaders hand down to its people a history of the country's freedom struggle, along with the territory comprising it. Freedom struggles by their very nature are often blood soaked and long drawn.

The importance of the history of freedom movement of a nation lies in the fact that it embodies the spirit of the nation. Looking back at it is therefore often very rewarding to make a dispassionate assessment of a nation's character, its courage, determination, spirit of sacrifice and its love for the country and its people.

No nation's pre-independence and post-independence history can have the same basic flavour. This is because a nation's struggle for freedom is often for a great and a single cause, namely, liberating the motherland from a foreign power. People all over the world have shown great spirit of sacrifice comraderie during liberation movements.

The post independence period invariably brings with it the stupendous responsibility of providing a better quality of life to the people and ensuring greater social, political, economic and cultural justice to all sections of the society. In this magnificent task there may be many problems–resource mobilisation, drawing up correct socio-economic priorities, motivating people to contribute their best for the common good, evolving a just system of distribution of national income among its people and above all, to make an ideal and acceptable balance between competing or conflicting interests of the people. The national leaders have also to fulfil the hopes, aspirations and dreams of the people, often much beyond the immediate capacity of a nation.

It is customery therefore in all free states to observe anniversaries of their independence or to observe their national days. Such occasions provide an opportunity to the country's leadership, its people and its intellectuals an opportunity to do a dispassionate self introspection and to find out how far independence has been meaningful to the people, to what extent peoples' dreams have come true, whether social justice, and whether the country is moving in the right direction as visualised by its founding fathers, its freedom fighters and its people in general. Whether any mid-course corrections are needed to suit any new situation, national and international. If the nation has made mistakes, how to rectify them. And if there have been success, to rejoice upon them to build up greater self confidence.

Quit India Movement

India has just concluded its year long celebration of the Golden Jubilee of the Quit India Movement (August 1942), a bright landmark and the final thrust of India's freedom struggle, led by Mahatma Gandhi, the father of the nation.

The occasion gave us an opportunity to do an evaluation of our success and failure in the past over 4 decades and to give new directions to this colossal nation of nearly 900 million people and the largest democracy in the world. Before we attempt to do that let us go back to the days of the great August Movement and the unprecedented enthusiasm it created throughout the length and breadth of our country.

The Second World War had become more intense in Summer and Autumn of 1940 with Germany winning war after war in Europe. England found itself almost friendless. At that crucial moment America offered all help to England "short of war" and thus, the danger of invasion of England by Germany receded. On June 22, 1941 Hitler committed a historic blunder by attacking Russia.

Greatly alarmed at this, Churchill and Roosevelt signed the Atlantic Charter which spoke of "the final destruction of Nazi tyranny".

At that point Japan joined the war by launching a devastating attack on Pearl Harbour in the Hawaii Island on December 7, 1941 giving enough justification for USA to jump into the fray.

Japan soon overran the Philippines, Malay and British and Dutch Colonies in South East Asia Britain was humiliated and in February 1942 Singapore also fell to Japanese hands The war had reached the Eastern border of India with Japan's presence through Burma.

Meanwhile, Congress was unhappy over the fact that India was dragged into the war without its consent The Working Committee of the Congress therefore, issued a strongly worded declaration refusing "co-operation in a war which is conducted on imperialist lines" The Committee also demanded a clear statement from the British Government whether their war aims included the elimination of imperialism and grant of freedom to India No satisfactory reply came and Congress ministries in seven provinces (out of 11) resigned

When war heated up, Congress after a lot of deliberations offered more than once to cooperate in Britain's war efforts if only a Provisional National Government was set up at the Centre

The British Government cunningly utilised the widening rift between Congress and the Muslim League on the question of India's future political setup to avoid giving any assurance of a National Government The only proposal was to widen the Viceroy's Executive Council by inducting a few more Indian members and to set up a constitution making body for India after the war ended

Congress in protest started in October 1940 an individual Civil Disobedience campaign under the leadership of Mahatma Gandhi The deadlock continued till Japan created panic in Britain by its advance in March 1942 towards India

Pressure came from Britain's war ally, USA for a settlement with India Promptly Churchill's War Cabinet announced on March 9, 1942 that Sir Stafford Cripps, a member of the Cabinet, was being deputed to India to discuss with Indian leaders the future of India.

The Cripps Mission (March-April, 1942) ended in a failure as his proposal, a minor modification of the Viceroy's old proposal of August 8, 1940, fell far short of the Indian expectation It also had a tacit acceptance of the Muslim League's, now strong enough, demand for a separate state, Pakistan, for the Indian Muslims This proved to be a convenient excuse for the British government to turn down all Congress proposals for a national government as Muslims were opposed to it

Frustrated and infuriated, the Indian National Congress at its August 7, 1942 session in Bombay (August Kranti Maidan) passed a strong resolution, asking the British to quit India The operative part of the resolution read, "The Committee resolves, therefore, to sanction for the vindication of India's inalienable right to freedom and independence, the starting of a mass struggle on non-violent lines on the widest possible scale'

The Government was determined to inflict a decisive blow to the Congress, and its decision to do so was encouraged by the stand of the Muslim League Mr Jinnah observe , "The latest decision of the Congress Working Committee on July 14, 1942, resolving to launch a mass movement if the British do not withdraw from India is the culminating point in the policy and programme of Mr Gandhi and his Hindu Congress of blackmailing the British and coercing them to concede a system of government, and transfer power to that government which would establish a Hindu Raj immediately under the aegis of the British bayonets, thereby throwing the Muslims and other minorities and interests at the mercy of the Congress Raj "

The Committee placed Gandhiji in command of the movement, but warned that a time might come when Congress would be unable to issue instructions for people's guidance "When this happens every man and woman who is participating in this movement must function for himself or herself within the four corners of general instructions issued.'

It also made it clear that the transfer of power which the Congress was seeking "will belong to the whole of India", and it never wanted the power only for one section of people Before the Congress could make any actual preparations the Government, in the early morning of August 9, arrested all the Congress leaders and the organisation was banned as an illegal body

In the absence of a definite organisation and complete lack of leadership, violent riots, cutting of telegraph and telephone lines, damaging railway tracks, stations etc occurred on a large scale throughout India. The Government took strongest possible repressive measures, including firing from aeroplanes. India was burning

The official estimate of arrest was 60,000 and 18,000 were detained without trial, 940 were killed and 1630 injured because of police or military firing

The brutality of the imperialist power was able to contain the Great August Movement for the time being but could not crush the spirit of independence and the burning patriotism of the Indian people. And this high point of India's freedom movement gave to the British Government the clear message that time had come for them to quit India In just 5 years transfer of power took place, and India's "Tryst with destiny" started

Jallianwala Bagh Tragedy

The "Quit India" Movement of August 1942 was the final thrust of India's freedom struggle The only other single event in the long history of the struggle, comparable to the August '42 Movement, was the Jallianwala Bagh Massacre or the Amritsar Tragedy of April 13, 1919 Both gave bloodbath to India, both aroused strong patriotic fervour and both are examples of great courage

India should naturally commemorate the 75th Anniversary of the Jallianwala Bagh Tragedy in 1994. At a time of sagging morale and evaporating patriotism and nationalism it is most appropriate to recall the Jallianwala Bagh episode

After the First World War, India and other British colonies started demanding a new and more liberal relationship with their colonial master Government of India started looking at the Indian people with suspicion and India's trust in the honesty of Britain in doing justice to the Indian people reached a very low level. Dismemberment of Turkey and the British role in it antagonised the Indian Muslims, and the Indian people–the Hindus, the Muslims, the Sikhs and others united as one people under the leadership of Mahatma Gandhi who had returned to India in 1915 from South Africa with his bitter experience of the British rule. Post war recession increased people's sufferings and discontent.

The British attitude hardened and the need for stringent laws to contain restlessness was felt by the Government of India Mr. Rowlatt, a judge of the High Court of England, was sent by the British Government to head a committee to make new laws of suppression and oppression The Rowlatt Act was passed on March 21, 1919 with 22 Indian members voting against it and 35 official members in favour The Act gave extraordinary powers to the Government to try suspects in camera, detain them without trial, with the right of appeal totally withdrawn ("No vakil, no appeal, no dalil")

Mr. Jinnah warned the Government, "if these measures are passed, you will create in the country from one end to the other a discontent and agitation, the like of which you have not witnessed, and it will have, believe me, a most disastrous effect on the good relations that have existed between the Government and people"

The Amrita Bazar Patrika of Calcutta branded it as a "gigantic blunder".

While opposition to the Act was widespread, conditions in the Punjab were explosive for many reasons, including pressure to recruit soldiers for war

Gandhiji gave a call for all-India *hartal* on April 6, 1919. The response was amazing and the Government became panicky.

Disturbances broke out in some places But the most tragic thing happened in the Punjab, which contributed the most to the success of the war.

The Rowlatt Bill raised deep anger and frustration in the Punjab Emotions ran high and there were large protest gatherings in many places which led to rowdy demonstrations and frequent clashes with police. April 6 *hartal* in the whole of the Punjab was near total which disturbed the sleep of the Governor Michael O'Dwyer, worst specimen of colonial rulers.

At this highly charged atmosphere the news of Gandhiji's arrest on his way to Punjab inflamed the atmosphere and police resorted to firing on student demonstrators in Lahore Amritsar was in ferment when the two most popular leaders–Satyapal and Saifuddin Kitchlew were served with notices not to address public meetings and later on were deported from Amritsar.

On the 9th April, the day of Hindu festival, a mammoth Hindu procession was joined by Muslims and Sikhs. There were demonstrations in front of D.C 's office and in panic he asked for military reinforcement. The demonstrators were brutally dealt with. Arson, plunder and murder followed.

Amritsar was handed over on April 11 to the military authorities under the charge of Brigadier Dyer who immediately issued proclamations banning all meetings, processions and violence.

A meeting defying the ban order was summoned at the Jallianwala Bagh in the afternoon of April 13 to register a strong protest against Government excesses Dyer took it as a challenge and decided to teach the agitating people an exemplary lesson

Jallianwala Bagh, the venue of the meeting, was enclosed from all sides by buildings with a few narrow openings. Fifteen to twentyfive thousand people had gathered there and were listening to their leaders. That was the time. Dyer and his men entered through the narrow main gate and without any warning opened fire Men, women and children fell in hundreds. Many were crushed in blind stampede. The dead piled up layer over layer, the wounded lay in agony, groaning and crying for water; but Dyer's "bravery" continued till his ammunition was completely exhausted Dyer then proudly left the slaughter house quite unconcerned about the dead and the wounded

Official report of the dead was 379, people's estimate, 1000 The number of wounded was many times more.

Punjab was totally cut off from outside world for two months during which barbaric torture was inflicted on the people including flogging, whipping and cutting off of water and electricity

Numerous people were sentenced, many to death.

O'Dwyer and his men were never repentent nor did they show any sense of shame at this blood bath of Amritsar. But in the language of Surendranath Banerjee, "Jallianwala Bagh kindled a conflagration throughout India" that hastened the ouster of the British from the Indian soil.

Forty six years have gone by since India achieved its Independence. We have for the first time tasted 'freedom' in our individual and national life During this period we have been self-sufficient in food production, have made

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Communication Effectiveness Of Social Marketing Campaigns: A Study

Dr. J.S. Panwar

EVERY nation in the world has some social problems of its own, which must be addressed to by the government and the citizens In a developing country like ours the problems such as, illiteracy, over population, drugs and alcohol abuse, malnutrition and environmental degradation are rampant Efforts are often made by the government, voluntary organizations, and responsible citizens to create awareness and change the unfavourable public attitude and behaviour in critical areas through some specific communication inputs

Any social marketing campaign aims at persuading the members of target groups to accept, modify, or abandon certain ideas, attitudes, practices and behaviour Thus, in the social context, ideas and behaviour are the "products" to be marketed The term has come to mean a social change management technology involving the design, implementation, and control of programmes aimed at increasing the acceptability of an idea or practice in one or more groups of target adopters

The concept of social marketing is new to our country not in the sense that earlier no attempts were made by any agency to promote a social cause or change an adverse social behaviour, but new is the awareness about the role of marketing in such endeavours and the professional outlook emerging out of this realization It is now widely believed that a sound marketing strategy is needed to 'sell' a new social concept or idea to the masses Hence the name social marketing

Some of the most relevant 'social products' being currently marketed in our country by various government and non-government organizations include acceptance of small family norm, promotion of adult education, protecting the infants from certain dreaded diseases through inoculation, use of clean drinking water, use of oral rehydration technique, national integration, protection of environment and the like Different communication media including print, radio, TV, and outdoor are being used for this purpose

However, in the last couple of years TV has emerged as the most powerful and popular medium of mass communication Being a blend of audio and visual presentation, it is being extensively used for the business and non-business communications With the expansion of its reach, TV now has its presence in every nook and corner of the country. Being capable of crossing the literacy barrier, it has the most profound impact on people

At the moment, a large sum of money is being spent by various public and private agencies and voluntary organizations to market some of these social issues. But the acceptance of such ideas by the masses depends largely on the efficacy of communication Moreover, the social products being currently marketed are of utmost economic and social relevance Therefore, it is a matter of great concern for us to see that the marketing strategies are implemented properly and the communication objectives are achieved satisfactorily

Pilot Survey

Effectiveness of any business or social communication is often judged on the basis of its attention value, comprehensibility, credibility, execution, and overall impact, that is, change in attitude leading to the change in behavior. It is in the context of this conceptual framework, that GH Patel Institute, Sardar Patel University, decided to conduct a pilot survey of some villages in Central Gujarat to collect a first hand information about the peoples' perception and communication effectiveness of some of these social marketing campaigns.

The sample consisted of 120 respondents selected from five villages situated on the periphery of Baroda and Anand towns. Men and women in the age group of 20-45, who either had a TV set of their own or had access to the village community or Panchayat TV viewing facility were only considered for inclusion in the sampling frame,

which was divided in four respondent categories namely–farmers, housewives, in-service persons, and self-employed businessmen and professionals. Equal number of respondents (thirty) were taken from each category to ensure proper representation to different groups. Not more than one person from each family was included in the sample. Households in the villages were selected on a semi-random basis.

Audio recordings (on a cassette tape) of the various TV advertisements included in the study were used to help respondents recall those ads, in case one is not able to do so without aid. The five social campaigns selected for the study included Family Planning, Adult Education, National Inoculation Programme, Clean Drinking Water Campaign and National integration.

Findings

The important findings of the survey are discussed below:

The unaided recall score for the various advertising campaigns are given in the table·

It is clear from the table that the unaided recall rate was quite high. Almost 50 to 60% respondents were able to recall the advertisements of the five aforesaid campaigns. However, the rate of recall was higher in case of Family Planning and Inoculation programme ads as compared to the National Integration ads. Similarly, from among the various groups of respondents the recall rate was found to be maximum among the self employed and the service class respondents as compared to the farmers and the house-wives. This difference may probably be attributed to the difference in literacy level of the two categories of respondent groups.

On being aided through audio tape, a majority of male respondents (80%) were able to recall the ads, but in case of house wives the rate of recall was only about 57%. However, it still proves the point that these social ads have by and large been successful in creating awareness about the issues involved, among the members of the target groups.

Another important thing that emerged from the survey is about awareness among young people. Though the children were not included in this study, it was observed that their awareness (specially among the school going children) about these social ads was very high. They were certainly better informed than their parents and were able to recall all the ads and their messages without prompting.

Respondent Category	Family Plan	Adult Educat	National Innocu.	Clean drink	National integra	Total
Farmers	16	14	17	15	12	74
House-wives	12	11	12	10	09	54
Service	23	23	23	21	21	111
Self-employed	21	20	21	21	19	99
Total =	72 (60%)	68 (56.7%)	73 (60 8%)	65 54.2%)	60 (50%)	338

Comprehension

Almost all respondents who could recall the ads, understood the message and the main theme of the communication. However, some difficulty was reported to be encountered in those ads where the message was a bit abstract or not communicated explicitly. The much acclaimed song sequence in the National Integration (NI) ad (*mile sur mera tumhara*) is one case in point

Credibility

Credibility of these messages was found to be very high. Almost all respondents agreed that there was an urgent need to limit the size of families by preventing the births, but a considerable majority (about 58%) was of the opinion that the explicit message for the use of Nirodh or any other contraceptives as shown on TV is quite embarrassing to them, specially in the presence of children and the elderly members of family. They proposed that the message should be limited to the extent of advising the people to see the village level health workers in this regard

In the opinion of respondents the child health and inoculation programme messages had really motivated them to visit the Primary Health Center (PHC) and get their infants vaccinated. However, the credibility of the adult education campaign was found to be relatively low because most people believed that beyond certain age it was very difficult (if not impossible) to get educated They did not seem to be convinced from the message that age is no bar for learning

One very important thing that was discovered in the course of investigation is that unlike other parts of the country the attitude of the people towards education of girl child is quite positive in this area Housewives (even the illiterate one) were very emphatic on education of their daughters.

Regarding clean drinking water the over whelming majority (66%) believed the message But in actual practice it was observed that people take out water from the pitcher, drink it from the same glass and then dip the glass again into the pitcer. In fact, it was found to be a common practice in these villages. Even in the educated families this was not considered as unhygienic.

In case of national integration ads, almost all respondents felt that there was an urgent need for strengthening na-

tional integration and promoting harmony among various communities. But they opined that it cannot be achieved merely by showing some advertisements on television That way, the credibility of the NI ads was found to be little low.

The majority of respondents (about 59%) was of the opinion that the political parties and their leaders should come forward to promote harmony among different communities

Likability

The likability of the various ad campaigns across different strata of population was found to be as follows:

1. Family Planning ads: Out of a total sample size of 120, 18% respondents liked the ads very much, 32% liked them to some extent and 28% did not like them at all Remaining 12% respondents remained non-committal on this count The reasons for liking the ads were given as presentation of real life situation (slice of life presentation) and direct communication

The reasons for disliking as stated by the respondents are, too explicit a message, monotonous, bad effect on children etc.

A large majority (62%) of respondents felt that the social awareness about the problem is critical for development and wellbeing of the society; hence such ads are necessary.

2. Literacy mission (adult education) ads: The likability of the Literacy mission ad campaigns was found to be on higher side About 45% respondents liked these ads very much, 28% liked them to some extent, 22% did not offer any comment and the remaining 5% did not like them due to some reason or the other

3. National Health Programme ads: Social advertisements related to prevention of infants from some dreaded diseases through inoculation were found to be very popular in these semi-urban type villages of Central Gujarat Even the level of awareness about the programme was very high This may be attributed to the fact that the ad campaign was being actively supported by field work and extension of actual facilities (availability of vaccines) to the remote areas The ads were liked by almost all sections of society due to the conversation style of presentation, simple language, and depiction of a real life situation Endorsement of the programme by some film/ TV star celebrities also had its positive effect

4. Clean drinking water campaign: Though the awareness about this social campaign was reported to be a bit low, the ads were generally liked by the members of target groups

5. National Integration: The most heavily advertised social ad *"mile sur mera tumhara"* (sponsored by the Lok Seva Sanchar Samiti) was reported to be the most popular ad among all NI ads, thanks to its melodious music, catchy title song and effective sequencing of the various video frames. But in spite of its high score on the likability count, it was revealed that about 50% respondents could not comprehend the message or the theme of the ad. May be it was too abstract a presentation for their level of education and exposure However, some other NI related ads shown regularly on the regional transmission were reported to be well taken by the viewers

The most important thing that emerged from the survey is that mass communication is more effective in the local language of the people Therefore, more time for such social ads should be allocated on the regional transmission than on the national net-work ❐

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given against fall in the value of rupee vis-a-vis the foreign currency in which the asset was acquired A distinction is made between short-term and long-term capital gains Foreign institutional investors are taxed 20 per cent on investment income, 10 per cent on long-term capital gains, and 30 per cent on short-term capital gains

FDI Inflows

Due to restrictive policy on foreign investment, inflow of foreign capital was not significant until 1980's However, over the last two decades FDI inflows into India have been steadily increasing, and since the initiation of policy reforms on FDI in July 1991, FDI approvals have increased manifold In the post-policy period, i e., August 1991 to July 1993, the Government has approved as many as 2,965 foreign collaboration proposals including 1,295 cases for foreign equity participation Total FDI approved at Rs 91 78 billion in the post-policy period (August 1991–July 1993) is more than seven times the total FDI approved in the last decade (1981-1990) which was only Rs 12 7 billion More than 80 per cent of the approvals are in the priority sectors such as power (Rs 20 1 bn), fuel and oil refineries (Rs 17 5 bn), food processing (Rs 11 3 bn), chemicals (Rs 6.6 bn), electronics and electrical equipment (Rs 6 bn), metallurgical industries (Rs 5 8 bn), transportation (Rs 3 2 bn), industrial machinery (Rs 2 2 bn) and telecommunications (Rs. 1 3 bn) Country-wise break-up indicates that FDI approvals in respect of USA, Switzerland, Japan, Germany, UK, the Netherlands, Australia, Malaysia, Singapore, Hongkong, Sweden and Republic of Korea showed a quantum jump.

India's Commitment To Child

Dr. T.N. Kitchlu

The Constitution of India in its Directive Principles of State Policy pledges that the State shall, in particular, direct its policy towards securing ... that the health and strength of workers, men and women, and the tender age of children are not abused and that citizens are not forced by economic necessity to enter avocations unsuited to their age or strength; that children are given opportunities and facilities to develop in a healthy manner and in conditions of freedom and dignity and that childhood and youth are protected against exploitation and against moral and material abandonment As a follow up to this commitment, Government of India adopted a National Policy for children in 1974 which reaffirms the Constitutional provisions and declared that it shall be the policy of the State to provide adequate services to children both before and after birth andthrough the period of growth, to ensure their full physical, mental and social development. The State shall progressively increase the scope of such services so that within a reasonable time all children in the country enjoy optimum conditions to their balanced growtth The specific measures to be adopted towards the attainment of these objectives were also highlighted. These included steps to provide free and compulsory education for all children upto the age of 14 under a time-bound programme; children to be covered under a comprehensive health programme, special assistance for children belonging to the Weaker Sections of the Society, protection of children against neglect, cruelty and exploitation and no child under 14 years to be permitted to be engaged in any hazardous occupation.

Rights

Since Independence human resource development programmes which focussed on material and child health, nutrition, and education have occupied an important place in India's efforts to raise the living standards of its people The Five Year Plans have provided the wherewithal to deal with these issues Technological developments particularly in health, nutrition and related spheres have opened up new vistas of opportunities for redeeming our age-old pledges to the cause of children It is against this back-drop that India has joined the comity of nations in the successive reaffirmations of global commitment to the cause of children in 1989 by ratifying UN Convention on Rights of the Child

The vaious Articles which are of paramount importance for the mental, physical, emotional, intellectual and educaional development of the child are enshrined in Articles 13, 17, 18, 28 and 29 of the UN Convenetion on the Rights of the Child 1989.

The Articles 13 states that "The child shall have the right to freedom of expression, this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontier, either orally, in writing or in print, in the form of art, or through any other media of the child's choice

The exercise of this right may be subject to certain restrictions, but these shall only be such as provided by law and are necessary.

a For respect of the rights or reputations of others or

b. For the protection of national security or of public order, or of public health or morals

Article 17 has stressed the great importance of the function performed by the mass media It emphasises the right of the child to have access to information and material from a diversity of national and international sources, especially those aimed at the promotion of his or her social, spiritual and moral well-being and physical and mental health To this end, State Parties shall

a Encourage the mass media to disseminate information and material of social and cultural benefit to the child and in accordance with the spirit of article 29,

b Encourage internatonal cooperation in the production, exchange and dissemination of such information and material from a diversity of cultural, national and international sources;

c Encourage the production and dissemination of Children's books,

d. Encourage the mass media to have particular regard to the linguistic needs of the child who belongs to a minority group or who is indigenous,

e. Encourage the development of appropriate guidelines for the protection

of the child from information and material injurious to his or her well-being, bearing in mind the provisions of articles 13 and 18.

Article 18 says that the "States Parties shall use their best efforts to ensure recognition of the principle that both parents have common responsibilities for the upbringing and development of the child Parents or, as the case may be, legal guardians, have the primary responsibility for the upbringing and development of the child The best interests of the child will be their basic concern.

For the purpose of guaranteeing and promoting the rights set forth in the present convention, States Parties shall render appropriate assistance to parents and legal guardians in the performance of their child-rearing responsibilities and shall ensure the development of institutions, facilities and services for the care of children

States Parties shall take all appropriate measures to ensure that children of working parents have the right to benefit from child-care services and facilities for which they are eligible "

As per Article 28 the State Parties recognise the right of the child to education, and with a view to achieving this right progressively and on the basis of equal opportunity, they shall in particular-

a Make primary education compulsory and available free to all

b Encourage the development of different forms of secondary education including general and vocational education, make them available and accessible to every child, and take appropriate measures such as the introduction of free education and offering financial assistance in case of need

c Make higher education accessible to all on the basis of capacity by every appropriate means

d Make education and vocational information and guidance available and accessible to all children

e Take measures to encourage regular attendance at schools and the reduction of drop out rates

States Parties shall take all measures to ensure that school discipline is administered in a manner consistent with the child's human dignity and in conformity with the convention

States Parties shall promote and encourage internaitonal cooperation in matters relating to educaton, with a view to elimination of ignorance and illiteracy throughout the world and facilitating access to scientific and technical knowledge and modern teaching methods In this regard particular account shall be taken to the needs of developing countries

According to Article 29 "States Parties agree that the education of the child shall be directed to

a) The development of the child's personality, talents and mental and physical abilities to their fullest potential;

b) The development of respect for human rights and fundamental freedoms, and for the principles enshrined in the Chapter of the United Nations;

c) The development of respect for the child's parents, his or her own cultural identity, language and values, for the national values of the country in which the child is living, the country from which he or she may originate, and for civilizations different from his or her own,

d) The preparation of the child for responsible life in a free society, in the spirit of understanding, peace, tolerance equality of sexes, and friendship among all people, ethnic, national and religious groups and persons of indigenous origin

No parts of the present article or article 28 shall be construed so as to interfere with the liberty of individuals and bodies to establish and direct educational institutions, subject always to the observance of the principles set forth in paragraph 1 of the present article and to the requirements that the education given in such institutions shall conform to such minimum standards as may be laid down by the State " ❒

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Oilseed Extractions–A Source Of Food, Feed And Foreign Exchange

G.Nagaraj and T.Damodaram

OILSEED production in India has touched an all time high of 21 8 million tonnes during 1992-93 Thanks to the concerted efforts by the Government of India through the Technology Mission on Oilseeds and other public and private sector agencies, India is nearer to self sufficiency in vegetable oils It was stagnating around 25 lakh tonnes till a few years back and it has touched a figure of 58 7 lakh tonnes this year which is a remarkable achievement The oil have added energy, taste and flavour to our food in addition to being a raw material for cosmetics They also help keep our machines in motion and increase their longevity as lubricants and paints.

The increased production of oilseeds has added a new dimension to our food and feed front by making available larger quantities of protein rich oilcakes The production of oilmeals/cakes since 1980 has been presented in Table-1 These oilseed meals have traditionally been utilised as feed for cattle, fish and poultry and the inedible cakes as organic manure

The main cultivated oilseed crops of India are groundnut, rapeseed-mustard, sesame, safflower, sunflower, soyabean, niger, castor and linseed The first seven are sources of edible oil while the last two supply industrial oil useful in paints, varnishes and lubricants After processing the oilseeds for the oil through expeller and the solvent extraction mills the residue, namely oilmeal or cake is treated as a by-product by the oil industry. Most of the time the cakes are handled carelessly and under unhygeinic conditions. Such products lose their commercial value and importance.

With the increasing production of oilseeds, the availability of oilcakes have also steadily moved up From around 49 lakh tonnes in 1981-82, the present availability of oil meals is around 82 lakh tonnes The export earnings from cakes have also increased sharply over the years to about Rs. 900/- crores in 1991-92. There is scope for further stepping up of the exports as well as their better utilisation as food and feed materials

As long as the oil extraction units were in the village level ghanies, some oil cakes like groundnut and sesame were utilised as components of dietary items The advent of modern vegetable oil processing mills rendered the residue as by-product suitable only as livestock feed. The cakes are richer than the oilseeds in proteins, carbohydrates, minerals and even vitamins

The protein content of the nine oilseed meals range from 20-50% Oilseed extraction can be placed in three categories based on their protein content. High protein meals include those of soyabean, groundnut and sesame with 40-50% protein, meals of niger, rapeseed-mustard and linseed have 30-40% while the others have lower protein contents of 20-30%

Proteins are necessary for physical

Table-1
Production of Oilseeds and Cakes

Year	Figures in thousand tonnes: Oilseeds	Cales production	Export of cakes*	Value export earnings in crores (Rs)
1981-82	12,080	4875 5	824 4	117 9
1982-83	9 995	4197 1	1120 2	148 6
1983-84	12,692	5238 0	978 2	151 6
1984-85	12,946	5516 9	828 9	136 9
1985-86	19,833	4662 8	806 9	134 0
1986-87	11,270	4715 8	1044.6	190 2
1987-88	12,629	5542 5	1126 5	213 0
1988-89	18,033	7436 1	1600 0	406 0
1989-90	16,924	7184 6	2323 6	610 0
1990-91	18,409	8195 8	2447 8	609 0
1991-92	18,277	8223 3	3o47 8	957 0

***Various issues of Economic survey, GOI, Ministry of Finance.**

and mental growth as well as for the maintenance of good health and vigour India needs around 16.7 million tonnes of protein on the basis of a daily per capita minimum requirement of 50 gm for 90 crore population. The availability through cereals, pulses, milk and other animal products is around 13 million tonnes The gap can easily be met fron the present availability of around 82 lakh tonnes of oilcakes even at the lowest level of 20% protein.

At present the pattern of utilisation of oilmeals is as follows: 72% as animal feed, 17% for export and 11% as manure There is need for changing this pattern Apart from increasing our exports the meal can be upgraded for human food consumption The products that may be considered for protein isolated or protein hydrolysates (amino acids) These can be used in commercial production of weak, convalescent or infant foods Low cost protein flours can be of help in subsidised nutrition programmes.

The proteins of oilseeds are very good sources of essential aminoacids required in our food. Soyabean and rapeseed are rich in lysind But soyabean is deficient in sulphur containing namely cystine and methionine and tryptophan Sesame protein is rich in methionine. Hence, sesame cake can be blended with other oilseed cakes to improve their nutritional quality

Oilmeals are also rich in carbohydrates and minerals Sugar content of the meals range between 26 and 30% They are less harmful to diabetic patients The mineral contents range from 4 to 10% They are rich in calcium, phosphorus, magnesium and iron which are essential nutritional constituents for our body

Oilseed meals contain some toxins and antinutritional factors like polyphenols, protease inhibitors, oxalates, phytates, glucosinolates and aflatoxin These reduce the nutritional quality of the meal apart from causing illness and other health problems.

Such low grade cakes can be improved with some treatments. The cakes can be treated with ammonia gas to improve their texture, detoxify aflatoxin and allergen and enrich them with nitrogen (protein) Dehulling is another simple process to upgrade the meal quality by reducing the crude fibre. Steaming is useful in removing toxins from rapeseed, castor and linseed meals. Thus there are a variety of simple techniques to improve the cake quality from feed to food and inedible cake to animal feed. Such improved cakes and those processed under hygenic conditions apart from being useful as food and feed can earn us more foreign exchange. ❑

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(Continued from page 8)

continue to receive deposits under the scheme, which would continue without any change in maturities available to non-resident depositors The lowering of interest rate on NRE and exchange guarantee on FCNR accounts is quite in order, considering the much lower rate of interest in the international market The exchange guarantee scheme meant considerable losses to the RBI with constant depreciation of the rupee in the past Further, with a comfortable foreign currency reserves position, India is no longer in the need of attracting funds of this nature, which showed constant volatility during the period of crisis in 1990 In another minor amendment, the credit policy allows select financial institutions–IDBI, ICICI, IFCI, IRBI, SIDBI, EXIM Bank and NABARD–to borrow from the term money market for periods in the maturity range of three months to six months within the limit stipulated for each institution RBI has also extended to all borrowers having working capital limits upto Rs 1 crore from the banking system, the present procedure of assessing working capital needs on the basis of 20 per cent of the projected turnover The procedure was so far applicable only to village, tiny and other small scale units having working capital limits upto Rs 50 lakh

While summing up, it would be appropriate to mention that the policy is true to the RBI Governor's remark that it was directed to ensure support by the banking sector to the "revival of output" This is evident not only from the reduction in SLR, but also from a number of other measures. One of them mentions that one-third portion of term loan instalment falling due in the next 12 months need no longer be treated as item of current liability for the purpose of calculating maximum permissible bank finance. This would result in an increase in maximum permissible bank finance by Rs 1,500 crore to Rs 2,000 crore The Governor had in his talk to chief executives of banks said "while observing prudential norms, a slow down of lending by banks would be inappropriate Banks should meet the genuine and felt requirements of borrowers and the hesitancy of banks in taking credit decisions in the aftermath of the securities irregularities needs to be overcome " If the interest rate has not been brought down, it is because the rate of inflation has not yet stabilised As RBI Governor told pressmen later, lowering down of the interest rate would have affected deposits and consequently investments and would have gone against the banks objective of stimulating investments.❑

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An Overview Of Fishery Development In India

L.S. Srivastava

THE importance of fishery sector in a developing country is now well known In fact, it has a place of pride in the national economy of our country In an agrarian country like India, where land resource is limited, while food demand is increasing due to increasing population, the exploration of hitherto neglected water resource, which is available in plenty can augment our food supply significantly The nutritional quality of fish is incomparable It is a wholesome, digestible, protein rich (19 5%) food with universal taste. It contains all amino acids required for the human body Fish oil, which contains Omega-3 fatty acid, is good for prevention and cure of heart diseases

The fishery sector along with sea food and ancillary industries are providing gainful employment to over 4 million people offering immense employment opportunities In terms of India's export earning, it contributed to the extent of Rs 1767 crore during the year 1992-93.

Shrimp (prawn) farming, which is a short duration crop, provides quick return on investments Further, because of persistent demand and fast expanding world market of shrimps, it has tremendous export potential Shrimp farming not only provides gainful utilisation of unproductive coast swamps, but also generates employment opportunities in remote coastal areas

Potential

Countries's fishery resource comprises of three types of water viz., marine, inland fresh water and brackish water and each of these resources has two components (i) capture fishery (ii) cultural fishery

About 2 02 million square kilometer water spread of the Exclusive Economic Zone (EEZ) of India extending upto 200 nautical mile along 7517 km of coast line involving 9 maritime States presents sizeable marine fishery resource potential, which has not been effectively tapped As per survey reports, annual harvestable marine fishery potential within India's EEZ is estimated at 4 5 million tonnes, while the present production is only about 2 40 million tonnes

India is endowed with rich inland fishery resource in the form of extensive river system (length 29000 KM), Canal system (1,12,000 km length) and inland water body such as reservoir, tank, pond (2 70 million hectare), which provides scope for both capture as well as culture fisheries Annual average fish productivity from culture pond is 1 60 tonnes per hectare only against 10 tonnes per ha possible on the basis of the technology available in India

In addition, about 1 4 million hectare of coastal land along the estuaries is available for brackish water fish/prawn farming Aquaculture in brackish water by its very process is much cheaper than capture fishing in deep sea It is less energy consuming, more employment generative and gives a higher yield In Indian ocean, the yield per hectare in deep sea area is about 50 kg, where as in coastal aquaculture, a yield of ten thousand kg per hectare has been attained in Japan In India the present average yield through aquaculture is around 300 to 500 kg per hectare The highest production of more than 8000 kg/ha/crop has been achieved by some of the progressive entrepreneurs of west Bengal and Tamil nadu Thus there is tremendous scope available for increasing fish catch and production in India (Table 1)

Table 1

State wise Details of total brackish water area and estimated production

State	Estimated Brackish Water Area (ha)	Estimated Production (tonnes)
Bengal	4,05,000	12,150
Orissa	80,000	2,350
Andhra Pradesh	1,50,000	4,600
Tamilnadu	56 000	850
Pondichery	800	-
Kerala	2,42,000	5,160
Karnataka	8,000	835
Goa	18,500	3,165
Maharashtra	80,000	785
Gujarat	3,76,000	90
Total	14,16,300	29,985

India is the 7th largest fish producing contry in the world and accounts for 3.3% of world fish production India's per capita consumption of fish is 4 57 kg as compared to 70 kg in Japan and 30 kg in other developed countries The fish production and value of fish export in India over a period of time is given in Table 2

Table 2

Year	Quantity (Millions tonnes)	Export Value (Rupees in Crores)
1984-85	2 80	N A
85-86	2 85	398
86-87	2 91	460
87-88	2.95	531
88-89	3 14	597
89-90	3 25	635
90-91	3 50	876
91-92	4 14	1376
92-93	4 40	1800

Varieties

The concept of *composite fish culture* i.e. three tier system of culture is now getting popular in India Here six varieties of fish viz , Katla, Rohu, Mrigal, Silver Carp, Grass Carp and Common Carp, which have different feeding and living habit are cultured together The system not only results in optimum utilisation of water body but also in more productivity per unit area over traditional method.

The commercial varieties of prawn being cultured in India are Tiger prawn, White prawn, Flower prawn and Banana Prawn. Fresh water prawn i e , Rosenbergii species as spiny lobsters are also attracting the interest of the aqua farmers The commercially exploited marine fishes in Indian oceans are Shark, Skate, Cat fish, Mackerel, Ribbon fish, Pomfret, Prawn, Lobster, Tuna, mullet, Hilsa Shad, Eel, Crab etc

The concept of integrated fish farming is also popular in few specific pockets of India such as paddy-cum-fish farming, fish-cum-poultry/dairy/piggery/duck rearing etc.,

The air breathing fishes viz , Mangur and Singhi are of universal occurance in large number of ponds and have high market value but yet to get the commercial status.

Fish are either consumed fresh or preserved to maintain its palatability and nutritive value. A large number of value added fish products both for export and internal market have also been identified and the technology for their production is available The data also says that about 25.30% of fish that reaches to the consumers is in sub-standard condition due to unsatisfactory method employed in catching the fish, their preservation, transport and marketing. Therefore, there is scope for improvement in this area also The value addition not only makes food convenient for consumption and increases life of product but also converts low value fish into high value product with consumer acceptance.

Constraints

Some of the main constraints/challenges associated with the fishery-development are

1) Non-availability of fish seed of commercial species in adequate quantities at right time
2) Non-availability of cheap and acceptable supplementary feed.
3) Low price realisation of the produce due to present market structure
4) Inadequate infrastructural facilities like transport, cold storage, processing unit, etc
5) Lack of organised facility for training fishermen
6) Difficulty in leasing of fishing right of water bodies
7) Inadequate flow of institutional finance

Conservation

The present level of fishery activity and existing scenario in inland, brackish water and marine sector has not thrown up any environmental or ecological problem The Pollution Control Board is however monitoring pollution aspects particularly in sensitive areas where the activity is more intensive.

There are certain areas of concern in the coastal water in the context of heavy pressure of fishing for high value species and large scale capture of juveniles and spawning fishes reducing fish population in sea. Government, therefore, has already taken up adequate measures in this regard.

Fisheries Development during Eighth Plan

Government of India have accorded a very high priority for the fisheries development programme during the VIII Plan. The production has been targeted at 8.00 million tonnes as against the expected domestic demand by 2000 AD as 13.00 million tonnes. The emphasis and action plans are·

- Development of fresh water aquaculture
- Protection of bio-diversity of aquatic fauna.
- Strengthening of fish marketing through cooperatives.
- Policy on import of fish net making machines, setting up of fish net making units
- Promotion of mericulture as means of employment generation.
- Development of hatcheries for fish seed production
- Augmentation of deep sea fishing fleet through judicious mix of indigenous, imported and chartered fishing vessels
- Provisions of subsidy on the cost of indigenous constructed deep sea fishing vessels
- Systematic and intensive survey of resources in Indian EEZ.
- Augmentation of harbour facilities at major and minor ports
- Subsidy on diesel and oil to the exporters of marine products.
- Regulation of fishing by foreign vessels in Indian EEZ and by Indian vessels in the territorial water.
- Training on deep sea fishing operations.

Support

Apart from extending finance to conventional fisheries and small fishermen, commercial banks are also extending finance for fish seed hatcheries,

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Development And Environment Preservation In Himachal Pradesh

Dr. H.S. Parmar

HIMACHAL Pradesh, one of the most beautiful and picturesque regions of the country has been suffering from indiscriminate deforestation and use of pesticides in the name of development The State came into being as a result of the merger of 30 and odd princely hill states on 15th April, 1948 and it became the 18th State of the Indian Union on 25th January, 1971. It has an area of 55,673 Sq Kms and according to the 1991 census its population is 5,111,079 The state has made good economic progress during the last 40 years through the development of agriculture, horticulture, tourism and exploitation of hydro-electric potential. In this hilly State means of transport and communication are perhaps at the centre of all developmental work, therefore, all attempts were made for a reasonably satisfactory network of these facilities The rigid growth of population has given rise to resource inadequacy on the one hand and urgency to exploit it still further leading to ecological imbalance. Depletion of forest wealth is, to a great extent, caused by this factor

With the advancement of farm technology more and more land is being brought under High Yielding varieties of foodgrains. To increase the production and productivity, increased use of chemical fertilizers and pesticides is being made. Against 13.95 thousand tonnes of chemical fertilizers used in 1979-80, 32.71 thousand tonnes were used in 1989-90. Similarly, use of pesticides also has increased. Misapplication of yield increasing inputs cause water logging, salinity and pollution of drinking water and loss of fish Large scale use of plant protection chemicals in agricultural fields, especially in monsoon rainfed areas, which are carried by the run-off water down stream, ponds and rivers, causes major problems for acquatic eco-system as well.

Development of horticulture is very important in the economy of the State, as this sector, apart from giving direct benefit in terms of income and raw-material for fruit processing industries, gives direct as well as indirect employment to the labour force. Since the geoclimatic conditions of the state are favourable fruit production has increased phenomenally During the year 1950-51, the total area under all fruits was 792 hectares with an annual production of 1200 tonnes By the end of the Seventh Plan, area under fruits has gone upto 1,56,469 hectares with an annual production of 4,59,990 tonnes An additional area of 35,000 hectares is proposed to be brought under fruits by the end of 1994-95

Development of horticulture has given a boon to the economy of the state But at the same time, it has contributed to exert pressure on natural resources, mainly the forests With large scale apple production, the demand for packing cases has increased. As against 59 6 lakh in 1972-73, the demand for packing boxes increased to 143 6 lakh during 1979-80 The production of apples has increased further over the last twelve years and so has the demand for packing boxes. This resulted in ever increasing pressure on forest. Secondly, there has been encroachment on the forest area as hill slopes were cleared to plant fruit trees In the process the village common land has almost vanished

Animal husbandry is another important activity in the State and it plays a vital role in raising the income of the people Moreover, it provides nutrients and food in the form of milk, meat, wool, manure and serves as means of transportation The total livestock population of the state, according to 1977 livestock Census, was 47 95 lakh The total livestock popualtion went upto 51 24 lakhs, showing an increase of 6 8 per cent in 1982 census.

Hill-agro-eco-system is largely self-contained in which land, cattle and men are closely inter connected The phenomenon of increasing number of livestock, particularly grazing cattle has reached far beyond the supporting capacity of adjouning forests and pastures In the Himalayan environment, on an average 15-20 acres of land is necessary to support a single cattle, whereas the per capita grazing area available is only 0 8 to 1.5 acres. The situation of increasing pressure of cattle on pastures and forests had led to extensive damage of eco-system.

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Health & Welfare

Nutrition For Child Survival And Beyond

TARGET oriented programmes in nutrition health and food supply over the years have controlled severe malnutrition among the vulnerable groups in India. Increased availability of medical care and immunisation has also weakened the link bewteen malnutrition and mortality in children Today with 80 per cent immunisation coverage, the mortality rate øf under five year old children has been reduced to 126 per 1000 live births

However, with all this progress made, malnutrition among children in India continues to be a cause for serious concern A majority of India's pre school children suffer from protein energy malnutrition (PEM)_the most widespread form of malnutrition. According to figures published by the National Malnutrition Monitoring Bureau (NMMB), while 43.8 per cent children suffer from moderate degrees of PEM, 8 7 per cent suffer from extreme malnutrition

To combat this trend, India has launched a national plan of action for children giving special thrust to health, nutrition and education to meet the time specific targets. The plan envisages to reduce significantly severe and moderate malnutrition among children under five by the turn of the century.

For achieving this, nutritional intervention through integrated Child Development Services (ICDS) will be expanded to cover all vulnerable children in the age group of 0-6 years A concerned effort would be made to bring about appropriate behavioural changes among the mothers through existing programmes such as the ICDS, Urban Basic Services (USB), Development of Women and Children in Rural areas (DWCRA) and programmes of Food and Nutrition Board

The ongoing ICDS is a fine example of flexible community-based basic services approach *Anganwadis* (pre-school courtyard centres) have been established in poor communities where a local woman with four months' training in community development works with people to provide supplementary food, immunisation, health and nutrition education and primary health care The proportion of children with severe malnutrition has been drastically reduced in these ICDS blocks, according to surveys

To equip the management workers and other grassroots health workers with basic knowledge on food nutrition and health, a comprehensive nutrition education scheme was evolved in 1988 Apart from conducting camps and training through mobile food and extension units, wide awareness is being generated through the mass media These campaigns help the people have more nutritive diet within their given budget.

Incentives are also given by the Government for the production of low-cost processed nutritious foods like Miltone, ready-to-eat foods and energy foods. These products are used for the supplementary feeding programmes for young children. Apart from these, Government has taken up schemes for the fortification of milk with Vitamin A and salt with iron

Preventable Diseases

Almost 60 per cent of the deaths and much of malnutrition among children is caused by just three diseases-pneumonia, diarrhoea and measles. These diseases are preventable and that too by tried and tested means which are affordable by a majority of population These simple and inexpensive means include vaccines, antibiotics, oral rehydration therapy (ORT) and proper management of diarrhoeal diseases

Similarly, deficiency of Vitamin A which causes blindness to 10 million of children the world over can be prevented by proper nutrition education. Researchers have now confirmed that even mild vitamin A deficiency substantially increases the death rate among children between the age of six months and six years

Possible medical intervention not only prevents children's death but can dramatically improve their lives for such diseases as are also major causes of malnutrition Whooping cough, for example, can induce malnutrition by frequent vomitting which its coughing fits

provoke. Measles itself claims ten per cent of the body weight and halts weight gain for several weeks. Thus immunisation of all children against the major diseases would be an indirect immunisation against malnutrition itself. Any increase in protection against malnutrition would, in turn, reduce the risk of infection. Studies reveal that a malnourished child who contracts measles is approximately 400 times likely to die of the disease than a child who is adequately fed

Vicious Cycle

If the children are allowed to grow up malnourished, then the cycle of ill-health, low energy, low productivity low incomes and low levels of financial and energy investment in improving family and community life will be perpetuated into a new generation

The single most cost effective point at which this vicious cycle can be broken is providing nutritious food to the undernourished pregnant woman. Nutritional well-being of the pregnant woman is the most decisive factor in the birth-weight of the baby and birth weight is the most decisive factor in its chance of survival. Low birth-weight babies (below 2,500 grammes) for example, are three times more likely to die in infancy than babies of normal weight at birth At this stage investment in human life and health is most cost effective

For the new born babies, after five or six months, breastmilk alone will not be sufficient. And at that stage if the gradual introduction of other food does not begin, then weight gain falters, the growth curve flattens, the risk of infection increases and malnutrition takes a grip on the young child's life. Delaying weaning, therefore, gives millions of infants the first unintentional push down the slope of malnutrition. In India 36 per cent of all infants in the rural areas and 40 per cent among the urban poor are still being exclusively breastfed at the age of one year For one-fifth of those children, weaning does not begin even at the age of eighteen months.

Subsidised food at the time of weaning as well as in late pregnancy and early infancy can therefore be the sharpest means of cutting into the closed circle of malnutrition which now traps the families of the very poor

The urgent need today is proper nutrition education, and this has to be closely linked to activities like immunization, oral rehydration therapy (ORT), promotion of breastfeeding, birth spacing and female education. All these efforts are intended to correct dietary habits for improving nutritional levels through adequate behavioural changes. ❒

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Himachal Pradesh has come a long way in terms of road construction which is vital for opening up the economy of the State In the near absence of water transport and railways, roads are the only means of communication in this hilly state. So road construction is considered as the most important programme

There was just 288 Kms of motorable roads in the state at the time of its formation in 1948 Inaccessibility of areas was not only the handicap in the exploitation of its resources for development, but also kept the people isolated and away from the winds of change blowing outside. Starting almost from scratch, till March 1990, 16,883 Kms of motorable roads had been constructed.

Road construction activity on hill-slopes, unless scientifically and carefully done, causes landslides on both sides of the roads The use of blasting material proves much more hazardous as it disturbs the total setting of rock and soil Similarly, quarrying and mining have caused immense damage to the hill-slopes. The network of roads also exposed the forest wealth to its commercial exploitation and illegal trade as well

Similarly, power generation is a priority area in the state as its hydel potential offers great opportunities for exploitation of the total hydel potential of 20,000 m w of which only 272.07 m.w potential has so far been harnessed

In the sphere of industrial sector, not suitable for the establishment of large scale industrial units, many small and medium industries have come up both in private and public sectors. A few large scale units also have come up. In the year 1991, there were about 21,000 tiny and small scale and 130 medium and large scale industrial units functioning in this state Medium and large scale units include cement plants, paper mills, fertilizer plants and fruit and vegetable processing units.

Growth of industrial activity has created ecological problems as well Paper plants are known to have causing water and air pollution The state government has initiated some administrative and legislative measures to protect the ecology of the State. The essence of the problem, perhaps, is centred around the question of making environment protection a central theme in policy formulation for economic development For a sustainable development environmental protection is inevitable. ❒

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Integration Of Market With Planning

THE role of government is now seen as that of creating an environment which encourages and builds up people's initiatives rather than their dependence on the government and which sets free the forces of growth and modernisation The state has to play more of a facilitating role In more specific terms

(a) People's initiative and participation should be made a key element in the process of development,

(b) the role of the government should be to facilitate the process of people's involvement in developmental activities by creating the right type of institutional infrastructure, particularly in the rural areas,

(c) Public sector plan will have to become very selective, making investments only in those areas where investment is of an infrastructural nature or for human development, facilitating growth and development as a whole, where investment is essentially for preservation and augmentation of the basic resources of the country like land, forest, water and science & technology, and where investment is for human resource development, for improving the health and education and for protecting the weak and the poor whom market forces tend to overlook.

The activities which are amenable to organisation on commercial basis, i e., where benefits can be measured by the market against costs incurred, have been assigned to enterprises public, co-operative or private The recent economic reforms are for improving such institutions. The central goal of market oriented reforms is "economic efficiency" Economic efficiency is very much needed to get the best out of the very scarce resources and to have higher pace of growth Fast growth and enlarged size of economic cake ultimately benefit everybody

The need for institutional innovation is more pressing in the field of human development, and human development of the poor in particular There has been considerable effort through the plans at creating assets and infrastructure for the benefit of the poor However, more attention needs to be given to institutional development and to organising the poor in a way so as to bring out their own capabilities in combating poverty Since the main input for the centrally administered programmes are public funds, the procedures to implement the programmes have to be given due importance But money accounting cannot substitute for the wider social accountability

Two major problems exist There are limitations on the ability of the Government to manage transfer of resources through the mechanism of public finance at a scale commensurate with the magnitude of deficiency in availability of social infrastructure and the problem of poverty But the more important problem is the other one The "administered" programmes are a one-way flow of resources They, generally, fail to develop the poor beneficiaries into self-sustaining economic agents. Capability to manage their activity so as to realise a gainful exchange of resources with the economic system does not get created. Lacking economic strength, the poor are generally unable to safeguard their rights in the society. And social oppression follows from this

Major Step

Four -fifth of the poor in India live in the rural areas. With the enactment of Panchayat Raj Institutions Act in 1993, a legal framework for participatory rural institutions has come into being. The term "Panchayat Raj" refers to the rule at village level by an elected group, i e , the Panchayat, which is elected by the people of the villages The state governments can give executive powers to the Panchayats to raise resources, to carry out certain types of developmental activities and for which resources can be transferred to them out of the resources available to the state. This is a major step towards "decentralisation" of the public administration–placing certain types of activities directly within the purview of the local people rather than existing set-up wherein they exercise their choice of developmental activities through the assembly of their state, or Parliament. However, considerable efforts of the people at the village level and the Government are needed to operationalise the Panchayats into effective agencies for managing change.

Notable examples exist in India of the poor organising themselves into effective groups. For example, in a few towns the poor women working together have developed for themselves an infrastructure for credit, marketing and housing to carry out services or production of certain household consumption goods Confidence and self-respect of the members of these organisations have developed They have been able to approach the legal and administrative systems to

have their rights enforced These organisations have developed around voluntary groups but have interacted successfully with the Government set-up and the organised economic and social infrastructure in the public sector However, such voluntary agencies touch only an infinitesimal part of the poor masses. Those organisations which have proven themselves, can be encouraged to widen their coverage And conditions can be created wherein new voluntary effort is fostered. Empowering the poor has to be realised through planning

Reasonably good and successful results have been obtained when the state has played a facilitating role. The facilitating role is performed by creating of conditions and environment which will guide the private investment and production decisions along the socially desirable lines. Functioning of a free market is essential for evaluation of efficiency In the absence of a free market, the system becomes immune to costs and efficiency, and leads to enormous wastage of resources, ultimately resulting in the waste of growth potential

Planning, however, has a crucial role to play Planning has a role in giving expression to what constitutes the socially desirable objective. Planning has played this role in many countries where free market works Planning is needed for creating social infrastructure for human development. Planning is needed for protection of ecology and regeneration of environment and natural resources Planning is needed for protection of the weak and achieving a certain degree of regional balance in growth Market can probably perform these roles on its own But planning intervention are required for taming the market for achieving societal objectives ❑

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remarkable progress in Science and Technology, including fundamental research and in setting up a fairly strong industrial infrastructure

We can feel proud of our scientists, technocrats and the growing cadres of entrepreneurs and professional managers who have made this possible Basic political stability and democratic structure have been maintained through successive general elections in a vast country of great diversity, committed to a multi-party Parliamentary system. But the country remains one of the poorest in the world with over one-third of its population below the poverty line and rich-poor gap widening Gandhiji's ideal of "wiping every tear from every eye" is a distant goal. More than anything else there has been conspicuous erosion of values in our society. One cannot but feel alarmed at the deep moral crisis that has infected our national life, with dangerous portents

We must elevate ourselves to the level of enlightened citizens like those of the mature Democracies of the West Citizens with great awareness about the situation around them and capable of responding to such situations with responsibility and with concern for others and for the country We have to educate our citizens to inculcate in them such awareness, and such sense of responsibility and concern Once we have succeeded in doing so, enlightened citizens are sure to bring about an efficient administration and a fully responsive government in the country Education, formal and non-formal, and media have big roles in this transformation ❑

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equipments for fishing including boats nets, trawlers etc., To facilitate disposal of fish catch and help fishermen to realise remunerative prices, banks extend finance for setting up of cold storage and marketing facilities Agencies like Marine Products Export Development Authority (MPEDA) and state level fisheries departments such as Fish Farmers Development Agency (FFDA), Prawn Farmers Development Agency (PFDA) also associate with financial institutions in making the project a success as also they provide subsidies for different fisheries activities Shipping Credit and Investment Company of India (SCICI) also provides loan on soft terms for various fishing operations National Bank for Agriculture and Rural Development (NABARD) not only provides technical support in promotion of fisheries activity but also extends refinance facilities to the financing institutions

State Bank of India has so far financed about 7200 fisheries schemes involving and aggregate outlay of Rs 784 million

There is, therefore, no doubt that fisheries in India is now well poised to herald a major breakthrough in terms of technology and productivity given full support and encouragement for commercialisation of its potential Thus the ushering-in of the era of the *Blue Revolution* is in the offing ❑

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Review Article

Managing Labour For Development

M.K. Ghoshal

IT has been the national Government's endeavour to take care of the interests of the working classes in the context of promoting the socio-economic well-being of the community at large Guided by constitutional duties and responsibilities, the State has created an elaborate legal framework and administrative machinery for implementing progressive labour policies, laws, arrangements and schemes Labour issues are multidimentional both in-firm and off-firm

There is also a very close link between human resource development on the one hand and its deployment as workers on the other Workers and their diverse problems connected with employment, working conditions, training, wages, bonus, housing, compensation health, safety, welfare, social security, industrial disputes and hosts of related matters of importance to labour fall within the ambit of labour administration Labour is a concurrent subject in Indian Constitution and Centre-State co-ordination is the prime thrust of labour management

The author traces the history of labour administration in India since Independence in different aspects involving policy making, legislative measure implementational-cum-development functions at Central and State levels He has divided the subject matter of the book in two parts–Part I focuses on the Central role in labour administration andPart II presents selected studies on labour administration in eight states viz Andhra Pradesh, Assam, Bihar, Karnataka, Kerala, Orissa, Tamil Nadu and West Bengal Part I consists of nine chapters dealing with mainstreams of labour administration at the Centre, such as labour policy formulation in successive Five Year Plans, important labour enactments, industrial relations including methods of setting industrial disputes and oversee indiscipline through joint consultative machinery, labour welfare services and facilities including social security measures like–provident fund, gratuity, maternity benefits, workmen's compensation and the like, national employment and training services including the functioning of employment exchanges, special categories of labour administration, labour affairs including interaction with International Labour Organisation, labour statistics and research

The book is informative and provides an overview of the Indian experience of dealing with labour matters at the national and the ground levels. The author has skilfully condensed vast material on the subject for easy assimilation by general readers and students.

Though the book is a welcome addition to existing labour literature, one wonders at finding no reference to the new economic policy of the Government and its likely impact on labour The labour unions are apprehensive of liberalisation measures and exit policy for industrial units, threatening job security of workers To allay their fears the Government has come out with the National Renewal Fund Scheme to deal with structural unemployment issues to provide rehabilitation and training assistance to workers affected by the reform programme As the new policy leads to industrial revival in the medium and long term employment opportunities are expected to expand which will benefit the working classes A new forward-looking labour policy is reported to be under preparation which will safeguard labour interests in the emerging free-market competitive economic environment Labour unions have to respond to these initiatives in a positive and constructive manner to push the Indian economy to a higher growth path Undoubtedly, managing labour for development is a key element in socio-economic management. ❑

LABOUR ADMINISTRATION IN INDIA by A N SARMA, Published by Himalaya Publishing House, Bombay-400 004 ('Ramdoot', Dr. Bhalerao Marg, Girgoan, Delhi-110002 and Nagpur-440018; First Edition-1993, Pages 263, Price Rs 175

Book Review

POWER, POVERTY AND POISON– DISASTER AND RESPONSE IN AN INDIAN CITY: by James Manor, Sage Publications, New Delhi, 1993, Pp. 197, Rs. 220/-

The tragedy that struck Bangalore in July 1981, where 298 persons died consequent to drinking poisonous illicit liquor is the subject matter of this book. This absorbing book, is the result of a search for the whole truth, including not merely the dry facts but the setting of circumstances and opportunity in which the facts existed The work provides a vivid and faithful account of the factors that determine to a large extent the life pattern of the poor in an urban setting The book, with professional competence, analyses in an urban setting, the socio-logical aspects of the disaster and the relevance of the policy, excise, medical and media services and above all influence of the political system In this process, the author seeks insight into three prominent issues. First, how disasters of this kind occur? An answer to the question entails, in part, enquiring how institutions (both political and social, governmental and non-governmental), its public policies and its mode of development, create the conditions in which this sort of calamity can take place Second, how can we explain the varied responses to such catastrophies of different institutions and groups in the urban 'system'– the medical services, the press, the courts, government officials, policy and politicians? Finally, how do these in the poorest stratum of our urban society relate to these institutions and groups? How much and what type of access (if any) do the urban poor have to them, or–to put it slightly differently–what is the nature of their encounters (if any) with these institutions and groups?

Because of the highly complex nature of issues involved, the author, has followed an inter-disciplinary approach and, therefore, the division of the contents of the book into chapters, analysing single institutions or groups, though somewhat artificial has been followed for the sake of clarity The book has in all eleven chapters; in the First Part (The Disaster) there are four, entitled (i) It Begins, (2) Here of all Places Bangalore Cantonment; (3) Why do they Drink the Stuff? and (4) the Hooch Barons and the Excise Department, Seven Chapters in the Second Part (The Response), (5) The Medical Services, (6) The Press, (7) The Courts and the Legal Process, (8) The Police, (9) Politicians and the Voters, (10) Survivors, and (11) Implications

The Bangalore 'Hooch' disaster of July 1981 was an event concentrated in time and space in which a substantial number of the poor segment (slum dwellers) of an urban society underwent severe danger and incurred heavy losses and the social structure was disrupted Fulfilment of many essential functions of the society was also prevented.

Some extremely useful suggestions are contained in the last Chapter 'Implications', the one related to the establishment of Liquor Poisoning Code deserves special mention. In the context of India's declared policy of pursuing prohibition as enshrined in the Constitution, the book under review will be useful to all those concerned with the implementation of the policy of prohibition vis-a-vis the liquor and excise policy pursued by individual States In revealing the truth, James Manor has highlighted many facts which may not be to the liking of everyone Notwithstanding this, there is no hesitation in recommending that the book must be read by those responsible for implementing policies and programmes for the welfare and development of weaker sections as well as by the target groups themselves, if for nothing else but to familiarise with the forces that are at work in all such situations ❐

Dr P S K Menon

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Farmers Participation In Irrigation Management

B.N. Navalawala

DESPITE the impressive success in raising foodgrain production from 54 92 million tonnes in 1949-50 to an all time high of 180.30 million tonnes in 1992-93, the growth of agricultural performance is our country has remained modest. The net sown area has remained stagnant, around 140-141 million ha during the last two decades The overall agricultural productivity in case of cereals in India is as low as about two tonnes per ha (1989) as compared to other countries like China, South Korea, and USA having productivity of 4.0, 6 0 and 4 5 respectively and even with the global average of 2 7 tonnes per ha Even for major crops the productivity level against global average is quite low in India The Eighth Plan (1992-97) has set foodgrain production target at 210 million tonnes in 1996-97 with an average growth rate of 5 15 per cent per annum

Irrigation facilities are to be extended from 75.7 million ha in 1991-92 to 89 3 million ha in 1996-97 i.e an average growth rate of 3 60 per cent per annum Thus, the agricultural growth strategy is to move in two directions namely expanding the area for cultivation as well as under irrigation and optimising the agricultural productivity from irrigated area. The Eighth Plan focuses on improving the efficiency of existing irrigation projects through modernisation/rehabilitation For the improvement of existing irrigation systems the most important step is to integrate farmers' participation with effective institutional development, better maintenance and optimum utilisation

One of the factors responsible for the formation of water users associations (WUAs) is the pattern of land holdings in India Total number of operational holdings has increased from 88 89 million in 1980-81 to 97 15 million in 1985-86 and consequently the total number of marginal (less than 1 ha) and small (1.0 to 2 0 ha.) land holdings has increased from 74 5 per cent to 76 3 per cent of total number of holdings during this period Although average size of operational holders during the period 1980-86 practically remained the same, in the case of small and marginal land holders it declined from 1 84 ha. to 1 69 ha. As the level (quality) of services and the degree of reliability of an irrigation system are important factors, they may influence the collective behaviour of beneficiaries in coming together as formal or informal associations In many areas such organisations are not possible due to conflicts between different groups. For such farmers organisations formal of informal cooperation should be there and the group should be homogenous, the leadership has to be formed by convincing the group of the benefits of cooperation, and the Government department must keep its promises and commitments to such associations

Other important factors are the general dependence of farmers on Government, impact of subsidies (in form of low level of water rates, financial assistance for construction of water courses etc.) on the behaviour of beneficiary-farmers, and lack of financial freedom of the farmers associations

A precondition for making the WUAs successful is an assurance of reliable, predictable and pre-determined supply of irrigation water and some degree of financial autonomy However, financial autonomy requires accountability linkages between managers of irrigation projects and users and may lead to more cost effective use of funds and to better O&M In Taiwan, for example, the financial autonomy of irrigation associations has resulted in their placing great importance on high rates of fee collection to preserve the jobs of the staff of irrigation associations. Irrigation districts in China are not over staffed as the financial autonomy provides incentives to limit the number of personnel. In Japan and Philippines, structural changes have been made to reduce the O&M expenditure by turning over certain responsibilities to the farmers In Vietnam, prior to each irrigation season the financially autonomous irrigation agencies sign contract with the irrigation team of each cooperative regarding the number of irrigations to be given and the area to the irrigated. If the provisions of this contract are not met, the irrigation service fee to be paid by the cooperative is reduced Thus, financial autonomy is likely to encourage involvement of users, both because it is consistent with ownershop of irrigation facilities by the users and

because such an involvement is likely to result in lower cash payment by users for their irrigation services.

Other Forms

When we talk of farmers participation, it should not be limited to water users associations only. Another model in the form of irrigation companies has also been found to be working quite well in Gujarat, rather better than a cooperative society in certain areas. Irrigation companies are informal organisations with membership ranging from 5 to 120, but with model size of 25-40 members. They are not registered under any Act; as a result, they are not legal entities. All the resources for the beginning, as well as its continued operation, are internally generated Management of an organisation created for farmers participation, in form whatsoever may be, is very crucial which can make or mar such an organisation. When one talks about farmers participation, he should also be concerned with the survival chances/possibility rather than merely having taken the initiative

Another crucial aspect which is generally not seriously considered while discussing water users associations is the relook at the existing legal framework relating to Irrigation Water Management A survey of relevant legal provisions in the existing Irrigation Acts in India shows that not all State Irrigation Acts provide for farmers participation in irrigation management For example, the Northern India Canal and Drainage Act, 1973, (as applicable to the States of Punjab and Haryana), the Bengal Irrigation Act, 1876, the Bombay Irrigation Act, 1979, the Rajasthan Irrigation and Drainage Act, 1954, Orissa Irrigation Act and Mysore Irrigation Act, 1955, do not contain any provision for association of beneficiaries in the management and administration of irrigation systems Even those State Legislations, which have provision for peoples participation provide for the same only in small community irrigation systems and such associations are required to function under the active control of the State Irrigation Departments. Therefore, the State Irrigation Acts are not only required to be strengthened but also suitablly amended to create conducive situation for WUAs including its formation

Also, a clearcut provision for the accountability of Irrigation Department on equal footing with the beneficiary-farmers or WUAs needs to be provided in the State Irrigation Acts The network of relationships between the Government departments/agencies and the Irrigation Water Users overlays the concept of coordination and brings to the fore the importance of accountability. The accountability perspective provides a more appropriate and stronger base for making the WUAs successful

A Case Study

It is true that in India, farmers participation is so far not widely propagated but in a number of cases the irrigation management by farmers has been a success Some such examples are, Sadguru Water Development Fund in Gujarat, Cumbum Valley and Lower Bhavani Project in Tamil Nadu, Cooperative Societies at the "minor" level set up by Maharashtra Government, Bali Raja Dam in Maharashtra (which has been controlled by the farmers under Mukti Sangharsh Movement) and the dam on river Krishna at Chikksadasalogi in Karnataka constructed by the people with their own funds, labour and material It would be interesting to refer to the case of organising farmers association in Lower Bhavani Project in Tamil Nadu An action programme was initiated in one of the distributories, Thindal, covering 1 615 ha A detailed study of the sub-systems was taken up for working out a proper strategy for forming farmers organisations to involve all the farmers extending upto the root level in taking responsibilities and in demanding the necessary power for negotiating for water

After a thorough study of the systems and the capacity of the farmers to understand the concept of farmers associations and farmers council, it was decided to limit the activity to one sluice command as a beginning projecting it as a demonstration centre. On that basis, it was proposed to organise farmers association in one major sluice command falling under a major branch channel. The main aim for such planning was to study the reaction of the farmers in a fairly large sub-system which was thought to be more representative than in taking the study in small areas.

An investigating team was then sent to collect all data about the land use pattern during various seasons, the availability of wells for irrigation, the problem of tail reach farmers, non-availability of field channels, etc. The farmers no doubt showed healthy interest in on farm development programme but they were not prepared to involve themselves in any discussion with the farmers of the upper reach, who are found to draw water out of turn. Even some of the farmers who were chronically affected and who did not even develop their lands for cultivation of rice never seemed to be very serious about claiming their water rights in spite of the inducement offered by the department probably on the assumption that the situation may never change. The departmental staff could not do anything much to get the farmers support for organising the farmers association

While the investigation and data collection was taken up, another team of qualified young men was sent in as Special Workers in Irrigation, called Irrigation Community Organisers (ICO) to motivate the farmers The first job assigned to them was to 'Integrate with the Community' meaning that they should go to the village, contact the farmers and talk to them about general topics, so that they may not be rejected as in the case of some of the Government staff as aligned in their society. They were also cautioned not to talk anything about the irrigation problems in the beginning They were on this job for a period of two weeks when periodical feedback information was obtained from them. They brought out various

dysfunctional social structures within the farming community which was found to work against the interest of organising them for a group action. The competition for water was no doubt keen but the upper reach farmers were always benefitted from their locational advantage which again caused problems in the smooth distribution of water. Personal enemity and court cases were again seen as some of the other reasons for the farmers reluctance to form themselves for a group action.

The ICO's who identified these problems started meeting the farmers more frequently and spent long hours helping them to sort out their personal differences. Within a period of two weeks these ICO's established very good rapport with the farming community. In the next stage the ICO's were asked to identify potential leaders among the farmers and talk to them about the concept of water management. At this stage the farmers came out with many more complaints, mainly about the quality of work executed by the department through contractors, inadequacy of lined channels, improper planning, undependable supply of water from the sluice and finally about their plight in depending on the low level staff of the Irrigation Department for their water needs Since, some of these points were within the sphere of activities of the department, acceptable solutions were found. The matter was favourable for motivating the farmers in the participatory programme

As a first step, the farmers were told that they could take up the execution of on farm development works through their Association and they were assured that the estimates would be prepared only after their approval of the plans which is normally done on village map It had salutary effects and the first discussion with the farmers on the planning aspect was very interesting Every farmer was keen to know the development which would help him in getting water to his lands. The anxiety was so great that when all their problems were individually met, they had a great sense of relief and started realising the fact that the scheme would benefit them all. From this point onwards they wanted immediate execution of works as per planning, so that there may not be any change in design or attitude of the departmental officers to revert back to the old system of planning and execution. Such involvement of the farmers made matters easy for ICO's to bring them together to form an association. As the ICO's were introduced as a catalyst, they made the farmers to initiate action on all aspects. Now the farmers were prepared to formulate their own by-laws and they utilised the services of some of the literate farmers for that purpose But the ICOs kept on organsing a series of farmers meetings Within a month, all the farmers in the selected command areas, decided to convene a general body meeting to elect the office bearers of the farmers association.

The same model of forming the farmers association is being carried out in four other command areas also in Tamil Nadu. They have gone to the extent of forming Womens' Forum comprising female members from the farmers association so that they can take up works like paddy threshing, winnowing, par boiling, etc to the advantage of the farming community 771 associations were formed by March 31, 1992 benefitting 21,296 farmers over an area of 21,411 ha in Lower Bhavani Command

Matrix Of Model

For ensuring successful participation of Water Users Associations in Irrigation Management the pertinent issues to be addressed to are

- Who would be responsible, and to what extent for irrigation works? Local people, public agencies, private agencies?
- What would be the source and extent of authority and legitimacy to be enjoyed by each of these institutions and, if shared, the terms, extent and method of accountability.
- What would be the design of physical lay out of the irrigation system?
- Methods of resource mobilisation, particularly allocation to irrigation works and programmes.
- Management and maintenance of irrigation facilities, whether public, private or cooperative The larger question of water conservation too cannot be ignored
- How would water be allocated among alternative uses, by whom and on what consideration, etc
- What would be the role, responsibility and accountability of irrigation functionaries in the event of involvement of users of irrigation in management, its methods and interaface with irrigation bureaucracy? Would one go in for community irrigation system, bureaucratically managed system or jointly managed one?
- Now that privatisation is catching up like a new fashion, the questions like the options, methods and extent of privatisation of existing irrigation systems and the ones to be created keeping in view the constitutional, legal and administrative set up in India need to be looked into

Encouragement and success of water users associations for Indian irrigation management are largely dependent on adeqate legislative backing to be provided through suitably amending the States' Irrigation Acts and on various financial incentives, giving more flexibility to the working of and providing opportunity more as a 'village level resource management' to the waters users associations The prevailing engineering-oriented approach or, at best, managerial approach for Indian Irrigation management will have to be changed over to productivity management approach ❒

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Sustainable Agriculture Some Observations

A.K. Nayak and A.P. Kanungo

THE term sustainable development was coined by World Commission on Environment headed by Gro Harlem Brundtland in the report "Our Common Future", London 1984 The Commission defined sustainable development as "development that meets the needs of the present without compromising the ability of the future generation to meet their own needs" It is protecting the environmental wealth, human capital stock, land, water and air Socio-economic, ecological, living and non-living resource base, choice between alternative decision, short term and long term advantages/disadvantages are the crucial factors in the process of sustainable development

The catastrophic population explosion and its subsequent effect leading to global warming, ozone depletion, acid rain, resource degradation in many countries became a new concern For the first time, the population supporting capacity of the land over a long time was being questioned In 1987 World Commission on Environment & Development in the report "Our Common Future" highlighted this issue. Consequently in 1988 Technical Advisory Committee to the Commission gave the definition of sustainable agriculture "Sustainable agriculture should involve the successful management of resources to satisfy changing human needs while maintaining or enhancing the quality of environment and conserving the natural resources".

A certain reorientation is needed in agricultural education, research, development, extension of the developed technology, strategy and methodology to achieve this goal Both in agriculture and industry the concept of sustainability has so far been considered predominantly at the level of economics For example, farmers generally take decision of the technology to be adopted on the basis of risk and cost benefit ratio Social sustainability also plays an important role since farmers of different region have different dietary habit. Therefore farmers will grow those crops which are desired for their home consumption ignoring the ecological consideration In order to attain sustainability plans and programmes must be framed to focus on the principle of ecology, economy and equity Keeping in view the above aspects, the following steps will have to be adopted to achieve ecologically, economically and socially sound agriculture

Soil And Land Management

(i) Based on both biological potential and biological diversity, land can be classified into conservation, restoration and sustainable intensification areas

(ii) Diversion of land suitable for sustainable farming to non-farm practices should be prevented by legislation Such land should be subjected to continuous soil health monitoring

(iii) Soils with diminished biological potential referred to as waste or degraded lands, should be improved through the efficient adoption of the principle of restoration ecology

(iv) Coordinated efforts are needed to halt soil erosion, soil acidification, degradation in soil fertility, deforestation, denitrification, nitrate and phosphate pollution of underground aquifers.

(v) Design of cost effective biological method to increase soil fertility

(vi) Evolve an ecologically sound land utilization planning

(vii) Evolve a suitable mixed farming of crops, trees and animal husbandry, so as to meet the specific need of the people involved in shifting cultivation

(viii) Use of modern tools to exploit the land resources with reference to land classification, use, capability and evolution of productive capacity as carrying capacity

Water Management

Effectiveness in water saving, equity in water sharing, efficiency in water delivery and use are important for sustainable use of available surface and ground water resources There should be an integrated policy for the conjuctive and appropriate use of river, rain, ground, sea and sewage water Important steps involved for sustainable water management are:

(i) Judicious use of water resources

(ii) Supply of irrigation water on volumetric basis so that farmers would use it more economically. Thus over irrigation and its bad impact on physical, chemical and biological properties of soil can be checked.

(iii) Water harvesting in command areas.

(iv) So far as ground water is concerned, the need for legislation regarding spacing, depth, quantity of water pumped through tube-wells, which may be privately constructed, owned and operated as it is a scarce resource.

(v) Proper design and management of irrigation system for preventing salinization

(vi) Application of remote sensing for proper assessment of ground water.

(vii) Proper technology is needed for exploiting ground water and recharging it

(viii) Proper allocation of funds for drainage, ground water resources development and electrification to utilise the irrigation potential

(ix) Development of environmentally sound low cost small/medium scale dam.

Water Harvesting

Defined as conservation of rain water under unirrigated condition, by collecting run-off of precipitation in order to suppliment soil moisture in an adjacent area.

It has four distinct components–

(i) Collection (harvesting) of excess rainfall

(ii) Efficient storage of harvested water.

(iii) Water application (including lifting and conveyance)

(iv) Optimum utilization of harvested water for maximum benefits

Integrated Nutrient Management

It is the nutrient scheduling model for maintaining soil productivity in the context of present deficit between nutrient supply and demand in intensive agriculture The components of integrated nutrient management system for suitable and easy adoption are·

(i) Farm yard manure (F.Y.M.)

(ii) Green manuring

(iii) Biofertilizer

(iv) Cropping system suitable for particular land

(v) Irrigation scheduling

Integrated Pest Management

"A system that in the context of the associated environment and the population dynamics of pest species, utilizes all suitable technique and methods in as compatible as possible and maintains the pest population at levels below those causing economic injury" The system comprises the following steps

(i) Breeding of strains possessing multiple resistance to biotic and abiotic stresses and conservation of natural enemy of the pests are important for minimsing excess use of the chemical for avoiding the multiplication of insecticide resistant pest or pest resurgence

(ii) Some chemicals, e g botanical pesticide like neem and selective microbial pesticides like *Bacillus thuringiensis* (Bt)

(iii) Agronomic manipulation and adjustment by comparing the life cycle of pest and crops

(iv) Effective monitoring and forcasting of population development of pest organism

(v) Less dependence on synthetic pesticide, which should be used at right time and in correct doses.

Genetic Diversity

A special programme is necessary for the collection, conservation, evaluation and enhancement of crop genetic resources directly related to the promotion of sustainable advances in crop productivity. Such genetic garden would help to assemble materials of variable characteristics

(i) Germplasm of nitrogen fixing trees species and shrubs, stem nodulating legumes like *Sesbania rostrata* as well as blue green algae (B.G A) and azolla

(ii) Plant species effective in pest control like, trees, annual plants, fungi and bacteria due to its antifedant and repellant properties

(iii) Plant species with higher fertilizer response

(iv) Plant species having commercial importance i e in medicine, agroforestry and alley farming etc

(v) Species which can help to prevent soil erosion and protect local food security often referred to as ecological or economic key species such as vetivergrass, *chenopodium species*, grain and leaf amaranths

Post Harvest Technology

Low cost drying, storage and marketing technology not only demand non renewable source of energy but also prevent quantitative and qualitative damage to the agricultural products Technology should be developed for the preparation of value added products from the agricultural products in order to give better return to farmers ensuring good nutritional and consumer acceptance

Future Research Need

A holistic approach needs in-depth study on the following topic·

(i) Participatory research and training of scientists with farm families through new pattern of organization

(Continued on page 11)

Livestock And Environment Conservation

Dr. R.K. Mehla and Dr. V.K. Dubey

The authors seek to disprove the contention that the third world nations are adding to the environmental hazard by releasing more methane into the atmosphere from the residue of their cattle stock, and hence the need for curtailing livestock population. In fact, it is the other way round. The practice of agricultural and allied operations of the developed countries is such that it leads to environmental degradation.

THERE is an outcry that livestock is posing serious environmental hazards around the world by releasing methane, green house gas, which contribute towards global warming As per report of World Resources Institute (WRI) published in 1992, across the world 270 million tonnes of methane is produced every year India alone produces 11 million tonnes of methane from livestock Though India possesses only one tenth population of livestock, its 14 per cent contribution to world's methane seems to be an inflated one The FAO (1991) reported that India possesses 457 70 million livestock, comprising 198 14 million cattle, and other animals like buffaloes, goats, sheep, pigs, camels, asses, horses and mules The figures of livestock population of the World, Asia and India are given in Table 1

According to the National Accounts Statistics (1991), the traditional livestock system at macro level generates Rs 15,918 crore annually Any adverse decision pertaining to livestock population dynamics may jeopardize efficiency of land and livestock resource utilization The decision may also assail the socio-economic rights of 42 1 million farm workers engaged in livestock rearing Under these circumstances, it is essential to analyse the issues pertaining to livestock and environment conservation in totality, with a view to arriving at justifiable conclusions

The National Accounts Statistics (1991) reported that for year 1988-89, 43 36 per cent animal waste was used for decomposition and manure purpose in India. The remaining 56 64 per cent animal waste was used for catering to the energy needs of the rural sector It was used in the form of cow dung cake, in which possibility of anaerobic decomposition was minimum, so also the methane emission, than reported by WRI

An analysis of livestock population and productivity revealed that average stocking rate of livestock in World, Asia and India was 0 304, 0 391 and 1,392 animals per hectare respectively Whereas annual average per hectare milk productivity in World, Asia and India in term of utilization of land resource was 34 76, 23 24 and 172.24 kg. respectively (Table 2) The corresponding values for meat prodcutivity average per hectare in World, Asia and India were 8.33, 10.50 and 6 98 kg (Table 2) respectively The average milk productivity of cattle, buffaloes and goats in world are 358,304 and 11 kg respectively (Table 3) The corresponding values in India are 136,719 and 17 80 kg. (Table 3) respectively. The higher stocking rate of cattle and buffaloes in India are attributed to higher milk productivity in the country

The unique feature of Traditional Livestock System pertains to highest average milk productivity per hectare i.e. 172 24 kg. hectare. Whereas in developed countries like USA and

Russia, average milk productivity per hectare is only 73.50 and 48.12 kg. respectively. Efficiency of utilization per unit area of land resource for producing milk in Traditional Livestock System (TLS) is highest in the world. It is due to the fact that the livestock is an essential component of diversified farming in India: multivariate application of livestock for production of quality edible nutrients for human consumption i.e. milk and meat, supplying of bullocks for farm operations and recycling of crop waste.

The livestock is reared on crop waste and fodder available from crop waste and uncultivable lands, with marginal inputs of green fodder and concentrate.

It was estimated that annual emission of methane from digestion of fodder bio-mass in animal system was 5,276 thousand metric tonnes. The low output of methane from livestock system at macro level could be attributed to two reasons. First, the unique feature of traditional livestock feeding system. In traditional livestock feeding system operating in various parts of India, mustard cake containing 8-10 per cent oil which contains higher content of unsaturated free fatty acids is fed along with crop residues and in some parts cotton seeds containing about 40 per cent oil is also fed. In this feeding system oil which is used alongwith crop residues simulates the conditions which minimise methane production

In traditional system 56.64 per cent of livestock waste i.e. dung is used for catering to domestic energy needs of the rural sector In the process of cow dung cake making the moisture content is reduced to 5-6 per cent. Due supply of air, low moisture contents and the anaerobic process create an unsuitable condition for methane production.

Another reason for minimum methane production in this system is that livestock travels 8 to 10 km daily in search of fodder. So the waste is laid in the open which dries quickly This makes anaerobic decomposition of animal impossible The dry dung is known as "Godhule" and is used to enrich the degraded soils in various agro-ecological regions. The concept of integrated crop and livestock system, followed by recycling of crop bio-mass help the process of ecological sustainability through replacement of external energy input i e chemical fertilizer and petroleum fuels used in mechanical farm implements in the system

In Factory Style Livestock System (FSLS) which is prevalent in developed countries like USA, feeding system of animals is grain oriented which results in production of more green house gases Further, the larger body size of livestock maintained in FSL system on grain based diet leads to consumption of more dry matter and consequently more problems of methane. Another important reason

Table -1

Live stock population of World, Asia and India (Millons)

Sl No	Category	World	Asia	India
1	Horse	61 620	16 555	0 965
		(0 004)*	(0 0037)	(0.0020)
2	Mules	14 925	6 157	0 140
		(0 001)	(0 0014)	(0 0003)
3	Asses	44 143	21 619	1 500
		(0 003)	(0 0049)	(0 0045)
4	Cattle	1294 60	399 274	198 400
		(0 869)	(0 0906)	(0 5153)
5	Buffaloes	142 184	137 365	77 000
		(0 009)	(0 0311)	(0 2342)
6	Camels	19 627	4 794	1 4990
		(0 001)	(0 0011)	(0 0045)
7	Pigs	857 099	435 708	10 450
		(0 057)	(0 0989)	(0 0317)
8	Sheep	1202 920	357 561	55 70
		(0 081)	(0 0812)	(0 0169)
9	Goats	894 286	343 725	112 000
		(0 060)	(0 0780)	(0.3407)
	Total	4531 40	1722 758	457 715
		(0 304)	(0 391)	(1 392)

* Value in Parenthesis indicate stocking rate ha-1

Source -F A O (1991) Livestock populatation of World, Asia and India

Table-2

Production of Milk and Meat in World, Asia, India (Million tonnes)

Sl No	Category	World	Asia	India
1	Milk	517 887	102 358	56 700
		(34 76)*	(23 24)	(172 24)
2	Meat	124 114	46,275	2 296
		(8 33)	(10 50)	(6 98)

* Values in parenthesis indicate annual productivity (in kg)

Table-3

Average Milk Productivity of Cattle, Buffaloes and Goats in World, Asia India (kg/annum)

Sl No	Category	World	Asia	India
1	Cattle	358	137	136
		(31)*	(12 5)	(82)
2	Buffaloes	304	304	719
		(2 9)	(9 5)	(84)
3	Goat	11	15 70	17 80
		(0 676)	(0 364)	(0 624)

*Values in parenthesis indicate annual productivity in kg/ha

for environmental degradation in this system is higher stocking rate of livestock in areas of intensive livestock rearing.

Moreover this system is highly energy oriented. For example in USA, 70 per cent of grain produced is fed to livestock To produce one kg. pork, 6.9 kg. of grain is fed to the pigs and to produce 6 9 kg grain 30,000 kilo calories of fuel energy is used Under this system lots of fossil fuel is being burnt The system which consumes more energy is not conducive to environment conservation. Liberal feeding of grain to livestock also proves too exhaustive to the limited land resources. The continuous flow of feed, water and energy in the system may also disturb the soil eco-system Manure, the most valuable bio-fertilizer, may also behave as a pollutant, if produced in excess It may pollute ground water In the Netherlands, manure is a major problem It leads to ground water contamination due to excessive nitrogen and phosphorus in manure. Manure percolates in ground water through soil Its high nitrate content may lead to nervous impairment of the plants Due to high energy input utilization and more methane production in this system, health hazards like Melanoma (skin cancer) have been observed. One per cent decline in ozone layer may lead to 4-6 per cent increase in (Melanoma) Besides this, tanned, wrinkled and leather skin disorder in human beings is also observed in countries practising FSLS Recently, acid rains have been observed in Germany. The acid rains may take place due to high ammonia liberation from livestock waste decomposition in FSLS Sustainability of a system is measured in terms of land resource utilization for meeting the productivity targets. In Russia and USA on an average from one hectare land only 73.50 and 48.12 kg milk is produced annually Whereas in the traditional system in India average milk production from one hectare land is 172 24 kg. It is due to the fact that in FSLS countries, livestock rearing is practised in isolation and followed by monoculture crop production Whereever monoculture crop cultivation is practised in thousands of square kilometres, not even a single animal is maintained. Crop wastes are either allowed to decompose or they are burned. Both the activities lead to environment degradation. The process of higher degree of dependence of FSLS or non-renewable energy and low efficiency of utilisation of land resources for meeting the targets of higher productivity assail the basic foundation of sustainability of FSLS system.

So it is illogical to make a sweeping statement that livestock population in India should be reduced drastically in order to prevent pollution Application of this concept would certainly affect adversely the land utilization efficiency, total productivity and finally bio-mass utilization efficiency. It would be useful to take, production and population dynamics of various categories of livestock in each agro-ecological region into consideration Attempts should be made in such a manner that total livestock productivity and per unit land resource productivity are not reduced in the process of manipulation of livestock numbers ❑

Continued from page 8)

ii) No tillage with natural management practice

iii) Organic farming involving manure, F Y M , compost, green manuring, oil cakes and every material locally available

iv) Earthwarm farming where this can be practised

v) Use of biofertilizer

vi) Design, construction and management of on farm packages to be used in watershed development and problems arise out of these practices

(viii) Substitute for synthetic chemicals for soil fertility management

Conclusion

The increasing population, massive industrialization, agricultural transformation, under development etc. are the major crucial factor that have resulted in massive exploitation of natural resources (i e water, land, wild life etc) Thus there is an urgency for sustainable development, which means our programme should be ecologically, economically and socially friendly To achieve agricultural sustainability a special programme is necessary for collection, conservation, evaluation and enhancement of genetic resources for the promotion of sustainable advances in crop productivity Scientific management of water, better use of degraded soil, adoption of inland fisheries, aquaculture, livestock, setting up small scale agroprocessing industry in rural areas to sustain rural economy, women's education etc are important points by which sustainability in agricultural productivity can be fulfilled attention to crop and livestock farming to agroforestry and aquaculture will be helpful in generating more job and income

A fundamental requirement for sustainability is participatory research and training Sustainability in agricultural productivity cannot be fulfilled without peoples education, information, training and effective participation ❑

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Term Financing: Indian Scene

Dr. M. Selvam

AS capital needs of industries vary with size, projects, growth form of organisation and so on, varied institutional financing agencies are necessary to pay specialised attention to each segment of the market At the national level, Industrial Development Bank of India (IDBI), Industrial Financial Corporation of India (IFCI), Industriesl Credit and Investment Corporation of India (ICICI), Small Industrial Development Bank of India (SIDBI) and Industrial Reconstruction Bank of India (IRBI), to mention the important ones, operate The first three are premier term lending institutions established in 1964, 1948 and 1955 respectively The whole of industrial term financing policy, planning and promotion are being monitored by IDBI since 1971 when it was made the apex institution The success of IFCI, the first term financing institution enabled the setting up of many of its kind later To give a thrust to private sector and to make available foreign currency loans on a larger scale, the ICICI known for its innovative excellence was put up in 1955 SIDBI, a subsidiary of IDBI, was established to specially cater to the needs of the small industries sector in 1990 IRBI was established in 1985 in place of the erstwhile Industrial Reconstruction Corporation of India

Then, there are specialised financial institutions like the RCTC (Risk Capital and Technology Finance Corporation Ltd) a subsidiary of IFCI, the TDICI (Technology Development and Information Company of India Ltd)–promoted by ICICI and UTI, the SCICI (Shipping Credit and Investment Company of India Ltd)–promoted by ICICI and others and TFCI (Tourism Finance Corporation of India Ltd)–promoted by IFCI and others RCTC and TDICI provide venture finance to promote new technological advance For encouraging and assisting development and investment in shipping, fishing and related industries the SCICI was instituted in 1986 TFCI, promoted in 1989 helps the development of tourism, a major forex earner, and allied industries By helping the tourism infrastructure, industry, TFCI adds to our potentials as a major tourism destination

LIC, GIC and UTI are principally investment institutions People's savings are mobilised through insurance and investment schemes for investment in various sectors The investible funds of LIC stood at a whopping Rs 3,59,690 mn at the end of March 1992 The investments of GIC and UTI stood at Rs 61,270 mn and Rs 3,05,510 mn by June 1992 These undertakings do assist industries, not to a great extent, but involving significant amounts By statute, the LIC and GIC are prohibited in making big investments in the corporate sector.

Apart from these institutions, there are the Khadi and Village Industries Commission, Commercial Banks, National Small Industries Corporation, Export-Import Bank of India, etc rendering financial assistance on all India basis

State level undertakings like the State Finance Corporations, State Industrial Development Corporations and State Small Industrial Development Corporations provide financial and non-financial assistance to small, medium and large industries There are 18 State Finance Corporations and 26 State Industrial Development Corporations Of the 18 SFCs, 17 are set up under the SFCs Act 1951 and the remaining one is the Tamilnadu Industrial Investment Corporation set up in 1949 under the Companies Act The SIDCs are established under the Companies Act, 1956 These promote and develop medium and large industries Merchant banking services of a broad range are also rendered by the SIDCs Of the 26 SIDCs, nine are functioning as SFCs also These twin function undertakings are in Arunachal Pradesh, Manipur Meghalaya, Mizoram, Nagaland, Tripura, Goa, Pondicherry and Sikkim Seven SIDCs are also involved in infrastructure building and extension services meant for small scale businesses, besides catering to the medium and large scale sectors

Assistance

Assistance rendered by financial institutions to businesses can be classified into financial, promotional and extensional A mixture of these services is rendered by almost all the financial institutions

Financial assistance is the predominant function of these institutions. Direct financial assistance by extending project loans, underwriting

of public issues of securities, and providing guarantees for loans and deferred payment of credit purchases accounts for a large chunk of assistances provided Financial services in the form of equipment leasing, equipment procurement, equipment credit, suppliers' credit, buyers' credit, instalment credit, bridge loans, etc are certain new forms of direct assistances provided Besides venture capital assistance, deferred credit assistance, asset credit etc. are also provided. Indirect financial assistances in the form of refinancing, bill discounting, bill rediscounting, loans to and investment in shares and bonds of financial intermediaries, Seed Capital assistances, etc. are provided by apex level/all-India financial institutions to secondary/state level intermediaries in financing

Financial assistances of concessional and soft types are also provided Lower rate of interest, margin money, promoters contribution, commitment charge, legal charge, and commission for underwriting/deferred payment guarantees and higher moratorium period, debt-equity ratio and equity participation by assisting agencies are provided, for softening the assistances when these are made to units in 'no-industry' districts, for renewable energy projects, modernisation of select traditional industries like Cement, jute, engineering, cotton textile and sugar For revival of sick units also concessional package is extended

Promotional services include surveying of industrial potentials of States and Union territories, preparing of techno-economic surveys, project profiles, feasibility Studies and project reports, promoting research, providing technical assistance and managerial expertise, training of executive personnel, developing entrepreneurs, broad basing entrepreneurship, encouraging renewable energy sources and the like. Subsidising the cost of conducting or putting up these ventures is done by the financial institutions The IDBI and IFCI are very much involved in these promotional services For instance, IFCI had disbursed promotional subsidies for 14,321 projects to the tune of Rs 5,490 mn upto March 1992 Of this, Rs 4,548 mn of subsidy assistance had been disbursed to the 18 technology consultancy organisations

Extension services of various types are rendered by the financial institutions Merchant banking activities, facilities for non-resident Indians, letter of credit facilities, institutions for management research and development, chairs of study and research in finance training institutes for foremen, promotion of technology consultancy organisation, assisting the development of testing facilities for small industries, promotion of voluntary agencies in the service of small industries, women entrepreneurs and ex-servicemen entrepreneurs, establishment of credit rating agencies and the like are the important extension services that are assisted/financed by the financial institutions

Rupee loans constitute the major form of assistance rendered Upto 31st March 1992, rupee loans to the tune of Rs 8,99,770 mn were sanctioned by the financial institutions IDBI tops that list with Rs 5,14,360 mn UTI (Rs 58,740 mn), SIDBI (Rs 53,070 mn) and so on The 18 SFCs together sanctioned Rs 1,36,280 mn The disbursed rupee loans stood at Rs 6,58,990 mn. as on 31st March, 1992.

Foreign currency loans to the tune of Rs 1,53,900 mn were sanctioned ICICI is the major player in providing foreign currency loans followed by IDBI, IFCI and SCICI The World Bank, United States Agency for International Development, Central Banks of foreign countries, Asian Development Bank, International Development Association and International Finance Corporation provide lines of credit in foreign currency to the financial institutions which in turn lend to needy industries for import of technology, capital goods and other inputs The disbursement stood at Rs 1,02,740 mn As to utilization of lines of credit in foreign currency, the rate is lower. If these lines of credit are fully utilised, Governmental external borrowings can be reduced

Underwriting of public issues of corporate securities and direct subscription to securities come third with an allocation of Rs. 1,51,250 mn till March 1992 In this respect the investment institutions, namely, UTI, LIC and GIC stole the show The ICICI, IDBI and IFCI come respectively in the 4th, 5th and 6th places The disbursements stood at Rs 96,570 mn again with UTI, LIC and GIC on the top It should be noted that as investment institutions the UTI, LIC and GIC directly subscribe to shares while the IDBI, ICICI and IFCI prefer underwriting to direct subscription

Guaranteeing of deferred payments for import of capital goods, of foreign currency loans raised by industrial undertakings from foreign institutions and of the rupee loans raised by industrial undertakings from banks or the public within the country, is another important function of financial institutions A sum of Rs 23,350 mn had been sanctioned, with ICICI alone accounting for 37 per cent of total of such guarantees Disbursements stood at Rs. 6,970 mn. ICICI has disbursed only 110mn against Rs 8,630 mn sanctioned figure, while IDBI has disbursed Rs 3,510mn against a sanctioned figure of Rs. 6,330 mn. Evidently, the lesser the disursement, the better is the performance as far as this area is concerned ICICI, thus plays well and safe

Total assistance sanctioned by all the listed institutions stood at Rs. 12,28,270 mn net of inter institutional The IDBI with a sanctioned assistance of Rs 5,60,020 mn stood head and shoulders above the rest, followed by ICICI, IFCI, SFCs, UTI, LIC, SIDBI and so on The per capita total sanctioned assistance stood at Rs 1,390, of which IDBI alone accounted for Rs. 624 The disbursement by all these institutions

(Continued on page 16)

Export Processing Zones An Overview

Dr. A.S. Raja Rao, Dr. B. Phaniswar Raju and N. Ravi Sankar

EXPORT processing zones are established with a view to promoting exports and to help the manufacturers with speedy and simple transactions While India was pursuing import substitution policies in the 1950s and in the early 1960s the need for creating an EPZ for the development of export-oriented manufacturing industries was severely felt Establishment of EPZ has been perceived as an important step in the process of export promotion and the first multi-product Free Trade zone came into being in March 1965 and it became operational during 1966-67 The government has established a second single product zone (Santa Cruz Electronics Export Processing Zone) at Bombay in September, 1984 In 1984, four multi-product zones were established at Cochin, Madras, Falta (near Calcutta in West Bengal) and Noida (in Gaziabad district, Uttar Pradesh) in consonance with the recommendations of P.L. Tandon committee The seventh Export Processing Zone at Visakhapatnam has been sanctioned on 15th March, 1989 and is under implementation

Each Zone provides basic infrastructional facilities like developed land, standard design factory buildings, build-up sheds, roads, power, water supply and drainage in addition to a whole range of fiscal incentives Customs clearance facilities are offered within the zones at no extra charge The facilities of banking, post offices, and clearing agents are also available in the service centres attached to each zone The EPZs had provided employment to 35,186 persons with 435 units in operation on 31st March, 1992

Performance

The zones export various products to Europian and other countries Cumulative exports from all the six EPZs recorded an appreciable increase to reach a level of Rs 1178 45 crore during 1991-92 from Rs. 359 79 crore during 1986-87 Taking 1986-87 as the base year, the export performance of the zones has increased from 100 points in 1986-87 to 328 points during 1991-92

Exports from Kandla zone had risen to a level of Rs 427 98 crore in 1991-92 from Rs. 236 27 crore in 1986-87 indicating an increase of 80 per cent However, the share of the zone in the total exports from all the six zones does not appear satisfactory, as it dwindled to 36 per cent (1991-92) from 66 per cent (1986-87) The Santa Cruz Electronics Export Processing Zone exported goods worth Rs 500.17 crore during 1991-92, recording an increase of 309 per cent during 1991-92 over 1986-87 This zone contributed 42 per cent of the total exports from the EPZs in India.

Among the four multiproduct zones set up in 1984, the performance of the zones in Madras and Noida is encouraging with 10 per cent and 6 per cent share respectively during 1991-92 From Rs 10 05 crore during 1986-87, the Exports from Madras Zone increased to Rs 122 47 crore during 1991-92 The indices of export performance had risen by 1100 points The export earnings of the Noida Zone has shown a contiuous increase of 641 per cent upto 1989-90 and its share increased from 2 per cent to 7 during 1989-90 The share had decreased to 4 per cent during 1990-91 due to decline in exports and rose to 6 per cent during 1991-92

The Cochin and Falta Zones too have done well but comparatively they lag behind the Noida and Madras Zones The exports from Cochin Zone increased to Rs. 28.58 crore during 1991-92 from Rs. 0.94 crore in 1986-87 and in 1992-93 the earnings has gone upto Rs 60 crore The Cochin Zone had recorded a steady growth in its export earnings till 1990-91 However, it recorded an appreciable level of increase of 430 per

cent during 1991-92 over 1990-91. Exports from Falta Zone risen to Rs. 27.90 crore during 1991-92 from Rs 3 17 crore during 1986-87 Between the two zones, Falta is comparatively faring well, because its export earning indices has risen by 780 points Even then, the share of the two zones is two per cent in the total exports from all the six zones

The above analysis of the export performance of the EPZs (individual and as a group) reveals the fact that it is marked by swings The share of the EPZs in all India exports does not exceed 2 67 per cent When compared with the export performance of EPZs in some selected co-developing countries the contribution of Indian EPZs is insignificant to our total exports For instance, the share of EPZs in the total exports of Philippines is 7 58 per cent, South Korea 3 per cent, and that of United Arab Emirates is 25 per cent in 1988 Over the last decade, China, Mauritius, Mexico and a number of other Co-developing countries have set up a string of exclusive export zones to provide a boost to their export drive with very good results The programmes launched by India much earlier did not take off owing to certain inherent problems of the manufacturing units and the Zones

Problems

Lack of standardisation of value addition condition and a plethora of value addition norms for different categories of products ranging from 20 per cent to 60 per cent are among the major problems confronting the industrial units in the zones Consequently, the units find it difficult to achieve the value addition criterion

One of the efforts to improve the performance of EPZs is to follow a uniform value addition criteria The current practice is to prescribe a differential value addition formula ranging from 20 per cent to 60 per cent depending on the product category In the absence of a uniform value addition criteria, manufacturers find it difficult to attain the value addition, and thereby foreign exchange earnings could not be maximized

In order to improve the performance of EPZs so as to contribute sizeable foreign exchange to the country during the VIII Plan, it is suggested that a National Free Trade Zone Authority may be set up as the apex body of all the EPZs This Zone should cut across all Ministries and other Government agencies to undertake genuine single window decisions It should replace the present authority and should be able to take on-the-spot-decisions concerning various aspects of EPZs so that substantial paper work and time-consuming and cumbersome procedures are avoided This step will go a long way in removing the irritants currently experienced by the EPZ units It should prepare a Five Year Plan with specific targets and detailed work plan for individual EPZs This plan and shorter term Annual Plans should be reviewed periodically

There are some other factors also which affect the EPZs adversely The Kandla Free Trade Zone does not have a strong communication network The Santa Cruz Zone does not have a computer link with companies in Western Region The Zones in Madras and Falta are constrained by congested port and inadequate warehousing facilities Air cargo facilities are also poor Noida is far away from the international airport at Delhi In the Cochin Zone the export performance could have been much better had the infrastructure facilities been developed to facilitate smooth operations Lack of cooling facility at Trivandrum airport and the absence of a commercial airport at Cochin have badly affected airlift of certain items such as tissue culture plants Transport, water and electricity supplied to these centres is far from satisfactory Warehousing and tele-communication facilities are also inadeqate

Due to lack of clear cut procedures, many units in EPZs are not able to take full advantage of the Domestic Tariff Area (DTA) Sales Schemes. The present high duty structure prevents these units from selling 25 per cent of their products in the domestic market though such sales are permissible under the policy

So the 100 per cent export oriented units should be allowed to sell a part of their products in the domestic market The duty for such sales be calculated on the basis of duties paid on raw-materials only but not on the finished products The procedures particularly relating to excise and customs should be simplified.

Indian EPZs have permitted manufacturing activities only in the zones Finishing, processing, assembling, break-bulk, trading etc , are not permitted and encouraged even if they fulfil the value addition criteria This also leads to loss So trading and other related activities also should be allowed inside the zone

The waste/scrap disposal norms are rigid in these zones The units are allowed to dispose off only 5 per cent of their production quantity as waste Any waste material above five per cent which goes out of the zones has to be valued by the customs authorities and can be sold in the domestic market only after excise duty (on the finised goods as valued by the customs) has been paid One of the problem areas of the EPZ industries is that the waste/scrap has to be independently evaluated by customs authorities which leads not only to delays, but also results in unrealistically high evaluation and stock piling until the evaluation by customs is completed which in turn creates environmental and space problems It is difficult to find buyers for 'used material' which is priced the same as the raw materials So steps should be taken to enable the manufacturers to have their scrap evaluated in time and they should be permitted to dispose off waste/scrap atleast upto 10 per cent of their production

Besides these there are many other related problems also To make them

more profitable, measures like better financing of the export units in the Zones by the financial institutions are needed Banks should be prompt in extending credit to genuine applicants. A welcome trend is the idea of promotion of a "Venture Bank" in the Madras Export Processing Zone The Coordination Committee functioning in the Zones are to be made more effective with speedy provision of credit

Moreover debonding procedures and labour laws governing these units need to be simplified and liberalised if EPZ scheme should get a real push

Apart from improving EPZs, thought should be given to set up a "Completely Free Zone"–which would be free from the normal rules and regulations including labour laws, import and exchange controls, licencing policies and with efficient and modern infrastructure facilities Such a step will help attract large investment, generate large scale foreign exchange earnings and can also become a source for mobilising foreign company deposits It will also create large employment opportunities. In India, experts are understood to be working on an alternative model of establishing EPZs, envisaging a major role for private sector

The package of remedies suggested above would certainly bring about an improvement in the structure and functioning of EPZs in our country. If these Zones can achieve the goal of attaining five per cent in the total export earnings of the country by the end of VIII Plan, then they will be able to play an effective role in export promotion While improving the prevailing conditions in the existing EPZs, Government should also explore certain suitable place in the western and eastern coasts to start new EPZs This will go a long way in improving India's exports ❐

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amounted to Rs 8,65,270 mn of which IDBI alone accounted for Rs 4,04,190 mn., ICICI Rs, 1,49,380 mn., SFCs Rs 1,03,060 mn, UTI Rs 88,770 mn, IFCI Rs 86,500 mn and so on The five all-India Development Banks, viz. IDBI, IFCI, ICICI, SIDBI and IRBI disbursed together Rs 67,400 mn out of the total of Rs 8,65,270 mn or about 78 per cent of the total Hence the greater role of these "big five"

Maharashtra State alone accounted for 20 per cent of the total assistance disbursed. Then followed Gujarat with 13 per cent Tamilnadu with 9 5 per cent and Uttar Pradesh with 9 per cent Among the industries, the private sector got about 80 per cent of assistance disbursed 12 per cent of assistance disbursed went to the public sector, 6 per cent to the joint sector and 2 per cent to the co-operative sector

Future Scenario

With the financial sector reforms and economic liberalisation programmes in stream, the environment of the financial institutions has changed There are both prospects and problems Increased operational freedom is the immediate benefits The IFCI is reconstituted as a public limited company, shedding its statutory corporate status from 1st July, 1993 The move is to get more operational freedom SIDBI, with lot of funds, is going for direct assistance to small industries–a marked difference from the earlier position as a refinancing agency Operational freedom leads to competition Efficiency in operations is needed to succeed in a competitive environment These institutions need to stand on their own as to funds As budgetary support from the Government is thinning down, mobilisation from the capital market is needed Capital issues can be considered Apart from this, inviting deposits from the public can also be resorted to In this regard these institutions can follow the model of Housing Development Finance Corporation which has successfully wooed small depositors On the problem of subsidies there is a need for equitable burden sharing on this subsidy count, rather than wiping off subsidies. For the industrial and financial growth of the country, these institutions can play a vital role ❐

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Reclamation Of Mined Wasteland

Dr. Ambarish Mukherjee

Of the different methods of reclamation, the botanical one is the best as once vegetation is established the aesthetic value and productivity of the area is increased, says the author. According to him, it is likely to prove a long term success in making the area available for future use.

WORLD'S economy depends to a great extent on mining knowing fully well that its practice is detrimental to our environment Its ever increasing concern in extraction of ores for fast developing industries has been ravaging the life sustaining systems to an alarming extent High mineral content of the mined and mine-adnate areas and toxic rejects make the environmental attributes hostile to the flora as well as fauna The situation, being very grave, demands earnest attention to encounter hazards emanating from stripping or opencast mining, compaction, tailings, acidity, metal toxicity and dissemination of pollutants from the ore-dependent industries

Vegetation proceeds gradually to total devastation with the progress of mining Often restoration of original community on once mined area seems impracticable Damages wrought by concomitant pollution are of no insignificance and its effect on the ecological systems, human life, ground water, aquifers etc need much attention There is deterioration of agriculture, pisciculture, forestry, pasturing etc The global land area disturbed every year by mining is about 386,000 hectares In India mining affects about 683,672 hectares dispersed in 19 States Inspite of the huge burden of spoils and pollutants, work on environmental restoration is virtually insignificant Recently work on iron-ore, bauxite, lignite and limestone spoils have been started in India Revegetation of limestone and rock phosphate mining areas in Dehra Dun, bauxite, dolomite and coal overburden in Madhya Pradesh, opencast mine spoils of lignite at Neyveli, coal spoils of Talcher etc have been started and the measures so far taken are upto satisfaction of environmentalists The Government insists upon reclamation of devastated surfaces before sanctioning new leases for mining Certain legislations should be enacted to monitor the derangements resulting from mining and mandate storage of top soil for reuse, refilling of mined areas, revegetation and natural hydrology

Lands turn barren in menacing contact of mining and allied works The vegetation emaciates in areas unable to evade from metal toxicity Once favourable soils during premining periods get converted into 'spoils' through alteration in physico-chemical properties and impoverishing nutrient status Plant growth on spoils is usually inhibited by deficiency of moisture Spoils often have a lower infiltration and water holding capacity and a higher bulk density compared to those of unmined soils Spoil banks consist of heterogeneous mixture of overburdened strata and its composition has a profound influence on its integrity Erosion is less severe if the surface soil (spoil) contains a significant percentage of coarse fragments

Revegetation

Acidity of spoils is often the principal factor inhibiting growth of plants For such areas grasses like *Phalaris arundinacea, Panicum virgatum, Cynodon dactylon, Panicum clandestinum, Echinocloa crusgalli, Dactylis glomerata* etc can be used. Acidic mine spoils support a very poor number of bacteria, actinomycetes and fungi so that there is a highly reduced biological activity, slow decomposition of litter and recycling of nutrients Besides rendering acidity chemical weathering of toxic spoils often produces high concentration of soluble salts Although one may expect improvement of toxic spoil banks with time it is erosion which removes the improved surface materials and exposes fresh toxic substances to the plants

An important component of an optimum rooting matrix for plants is organic matter as it has a desirable effect on soil tilth, nutrient supply, water infiltration and retention The spoils are mostly deficient in organic matter with nitrogen as the limiting factor for growth A legume-grass association if engaged can not only retain top soil but also eliminate the need for application of Nitrogen fertilisers Sewage sludges can be used as an organic manure to promote micro–as well as macro-flora on spoils The sludge byproducts of paper mills contain high level of basic cations and plant nutrients to amend spoils

Reclamation of mined lands is very intricate, complicated and site and climate specific. For a vegetation cover the spoil may require alteration of both physical and chemical properties since they usually have detrimental pH and texture, deficiency of nutrients and

moisture besides many toxic substances. Their optimisation may require liming, addition of sludges, mulches, power plant fly ash and covering of spoils with fertile soils brought from elsewere. Introduction of plants resistant to specific mineral rich soil may be used on spoils. Furthermore a thorough analysis of environmental constraints and climatic operations is necessary to steer amendments towards revegetation. To develop a healthy environment in mined areas large scale improvement should be designed hand in hand with wind screening measures since erosion is a major problem that not only reduces ecological productivity but also causes offsite damage by depositing toxic sediments in roadside ditches, water courses, water reservoirs and productive agricultural land in the vicinity. The success of revegetation depends on the selection of proper species which should be based on physico-chemical properties of the substratum, topographic influence, climate, use and management planned. The plants should be selected from those which existed in the premining period or those tolerant to site specific problems. There are some plant genotypes which have a high constancy and fidelity value on soils overloaded with a particular metal due to their narrowly specialised adaptation. These plants are called metallophytes. They have anomalous metal content and are of worth in stabilising soil and optimising environment. Many such plants have been discovered which include grasses, legumes, trees and shrubs. Copper tolerance of *Agrostis tenuis*, Cadmium tolerance of *Impatiens balsamina*, zinc tolerance of *Anthoxanthum odoratum*, lead tolerance of *Festuca rubra*, cobalt tolerance of *Silene cobalticola* and *Crotalaria cobalticola* etc. are known. *Rumex actosella* (Polygonaceae) is a metallophyte that can tolerate aluminium and manganese toxicity. Species of *Atriplex* can withstand aluminium and accumulate relatively high concentration of iron, magnesium and manganese. *Atriplex nummularia* grows well on nickel-rich spoils and *Atriplex canescens* on uranium–and coal-spoils. Other members of Chenopodiaceae can also be tried on soils rich in soluble salts. *Robinia pseudoacacia* is very suitable for highly acidic soils and are resistant to lime, magnesium, lead, zinc, sulphur, iron, coal and spoil banks of fire clay and brick wastes. Many grasses and sedges can grow well in and around coal and allied mines. In metal contaminated wetlands *Eichhornea crassipes*, *Juncellus inundatus*, species of *Cyperus*, *Typha*, *Carex* and others may be used. These are useful particularly along the edges of drainage of tailing dams.

Grasses, legumes, non-leguminous nitrogen fixing plants (e.g. *Alnus*, *Casuarina*, *Elaegnus*, *Trema* etc.) and ectomycorrhizal trees can serve as pioneers in revegetation programme. These plants can improve the site for further succession through their root system and contribution of organic matter. Many species of *Eucalyptus (E. camaldulensis*, *E. citridora*, *E. microtheca* and *E. tereticornis*) can be grown on mine spoils. *Eucalyptus camaldulensis* thrives well on tin spoils. *Araucaria cunnighamii*, *Khaya senegalensis*, *Pinus sylvestris*, *Swietenia macrophylla* are known to improve rock-phosphate spoils.

On tailings which have soluble salts certain xerophytic or halophytic plants may be tried since they can use deeply seated water table and resist high salinity. The use of algae, lichens and mosses in stabilisation of tailings and other overburdens can prepare a very favourable matrix for establishment of higher plants. Inoculating spoils with suitable microflora (bacteria, actinomycetes, fungi) is one of the most effective techniques since it can drive recycling of nutrients through decomposition. Introducing earthworms, termites and soil dwelling insects can augment incorporation of organic matter, porosity and finally revegetation.

Other Methods

There are other ways of reclaming mined lands. Clothing of spoils with fertile soil can be a good prescription for sites ailing from lack of organic substances. Such an exotic soil can form an abode of a wide range of non-metallophytes. Furthermore, penetration of their roots into underlying spoil can develop firm integrity and reduce the possibility of the cover being removed by sliding.

Mulching with agricultural refuse, pulp fibre, sawdust, straw, woodchips, cured hay etc. can change the microclimate governing the spoil, the surface temperature of which is often high. Mulches trap sediments and protect the site by reducing impact of rain drops, soil erosion and water run-off and increasing water infiltration. Mulches retain fertilisers and seeds in place, conserve moisture for seed germination, protect seedlings, prevent crusting and optimise microclimate of the soil. Mulches are particularly more efficaceous in erosion control on steep barren slopes than other conventional methods.

Power plant fly ashes when used in accurate quantities can promote revegetation on toxic spoils. Improper dosage may enhance toxicity particularly in strip mine areas.

Since mining is essential for economic development this should not be put in confrontation with conservation. It should be in vogue keeping harmony with ecorestoration programmes. Reclamation of mined areas and optimisation of their environment should be undertaken at a war footing basis together with more rationally planned mining policies and ore-based industrial pratices so as to keep economic development unimpaired. Of the different measures botanical method of reclamation is the best one since once a vegetation is established the aesthetic value and productivity of the area is increased. It is likely to have a long term success in making them available for future landuse demand and economic return. □

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Implementing Tax Reforms

TAXES, compulsory payments made by citizens for defraying the cost of public services, are key components of the economic system of any country An efficient tax system is the prime requisite to ensure economic efficiency, growth and equity This is more so, in the case of India, where a programme of stabilisation and structural reforms is going on

Macro-economic stabilisation requires a reduction in fiscal deficit and higher tax collections is an important route to achieve it. Higher tax collections, however, cannot be achieved by high rates of taxation as it encourages evasion Therefore, the need is to have a tax system which is simple to administer, has moderate rates and a broad base

The Government's thrust towards tax reforms thus forms a natural corollary to the new economic policy which it has been successfully pursuing for the last two years Accordingly during the period, monumental changes have been brought about in the tax structure

Efficient Structure

Over the decades, India's tax structure had become very complex, economically unjustifiable in many respects and unsatisfatory in administration Nominal rates were very high and evasion had become widespread Frequent changes in the rates and procedures had upset the whole system More often, tax policies encouraged economically unsound investment and production choices The burden of tax across tax payers was often unfair

It was this urgent need to devise a tax system that interferes least with the efficient allocation of resources that prompted the Government to constitute a high level committee of experts under the chairmanship of Dr Raja J Chelliah It examined the structure of direct and indirect taxes and made recommendations for making the tax system more elastic and broad based It also suggested measures for simplifying the existing laws and regulations to facilitate better compliance

The Committee submitted an Interim Report in December 1991 and Part-I of the Final Report was submitted in August 1992 and Part-II of the Final Report was submitted in December 1992 Many of the recommendations contained in the Interim Report were accepted by the Government and enacted through the Finance Act, 1992 These include reduction in the rates of personal taxation, aggregation of the income of minor children in the hands of their parents, restructuring and rationalisation of the procedure relating to assessment of firms and taxation of capital gains, introduction of the presumptive taxation scheme to small traders and restricting the taxation of wealth to unproductive assets

Guiding Principles

The Committee also identified some guiding principles in the area of the tax reforms The cardinal principle is that tax system and its burden must be acceptable to the citizens i e the potential tax payers The Committee is of the opinion that given India's experience and the present totality of circumstances affecting the tax system and its operation, it is better to have moderate rates with broader bases While the Committee stresses the need for the tax structure to be progressive, it cautions that it should not be such as to induce the generation of unaccounted income and wealth

The need for the stability of the system has been stressed by the Committee The structure once established must remain stable unless and until the economic conditions undergo a radical transformation. Ad-hoc change from year to year will undermine rationality and reintroduce complications

Simplicity is another aspect that has been mentioned The tax system and law should be as simple as possible It should have the strictly limited objectives of raising revenues for the Government in a fair and efficient manner achieving redistribution and discouraging some industries and use or consumption of some products as well as granting a reasonable degree of protection to domestic industries A simple system will have only a limited number of rates and exemptions or deductions and give the least possible discretionary power to the tax officials for interpreting the law Also mentioned are the modernisation of tax administration methods and the improvement of tax enforcement.

Gradual Implementation

The Finance Act, 1993 incorporated one recommendation contained in Part I of the Final Report, namely raising the exemption limit in respect of Gift Tax to Rs 30,000 The Finance Minister Dr Manmohan Singh had observed in his 1993-94 Budget Speech that "although all the major recommendations of the Chelliah Committee are important, they cannot be implemented immediately for the simple reason that tax reform, which typically involves lower tax rates collected on a broader base often involves a loss of revenue in the

short run. Fiscal experts tell us that the loss of revenue will be made in the medium term, but there is no guarantee that this will happen immediately.."

These recommendations made by the Committee in its final report and now being processed by the Government fall in areas like corporate profits tax including the taxation of foreign entities, problems relating to business taxation, interest tax, taxation of agricultural income and gift tax and charitable organisations

Indirect Taxes

Reformation of the indirect tax structure was a long felt need The two major indirect taxes levied by the Central Government are the customs and excise duties The import duty structure was complex, consisting of basic and auxiliary duties which made it difficult to compute the total incidence of custom duty The import duty also ranged from over 400 per cent to nil The high rates of import duty also necessitated a series of end use based concessions, whereby specified goods were allowed to be imported at concessional rates There was also a multiplicity of ad valorem rates of indirect taxes A large number of commodities were charged to excise duty at specific rates

Such multiplicity of rates and the high rates of taxes of many items often lead to disputes Rationalisation of the tax structure, thus, needs to be examined in a wider context so that the interests of revenue are properly balanced with that of the trade and industry and the consumer

Some steps were taken earlier to improve the system On the basis of the recommendations of the Indirect Taxation Enquiry Committee (Jha Committee) appointed in 1976, the excise duties were converted into a Value Added Tax (VAT) at the manufacturing stage. The introduction of Modified Value Added Tax (MODVAT) in 1986 was a major step in the reform of the indirect tax system The MODVAT scheme allowed the manufacturers to obtain instant and complete reimbursement of the excise or countervailing duty paid on the components and raw materials The 1991 budget saw MODVAT being extended to inputs for fibres and yarn. At present, only tobacco and petroleum products, textile inputs and matches are excluded from the MODVAT scheme

Serious attempts were made in the 1991 Budget to restructure the customs and excise levies in a manner that indigenous industries were encouraged while exposing them to increased competitiveness A long standing complaint of the industry and of experts in trade policy has been that the Indian customs tariff rates were too high and increasingly out of line with the trends in other competitor countries It was feared that if the high tariff rates persisted, India would not be able to compete with the neighbouring countries in the world market. As a first step, the highest ad-valorem import duty was reduced to 150 per cent in the 1991 budget.

Simpler Structure

The terms of reference to Tax Reforms Committee with regard to indirect taxes were to examine and make recommendations on simplification and rationalisation of customs tariffs, reducing the level of tariff rates, simplification and rationalisation of the structure of excise duties for better tax compliance and administration, and the scope of extending the MODVAT scheme

The Committee observed that Indian customs tariff rates were too high and increasingly out of line with the trends in other developing countries The high tariff rates would go on to create a high cost industrial structure Part I of the Interim Report pointed out that high rates of import duties had the effect of raising the level of protection enjoyed by Indian industries on account of depreciation of the rupee over the last few years. The import weighted average rate of import duty had increased from 38 per cent to 87 per cent between 1980-81 and 1989-90. For manufactured products, the increase during this period was from 38 per cent to 98 per cent.

According to the Committee, the programme of reform of import tariff should be reduction of the general level of tariffs; reduction of the spread of dispersion of tariff rates; and simplification of the tariff system and rationalisation of tariff rates, alongwith the abolition of numerous exemptions and concessions.

The Committee suggested that to protect the large and diversified industrial base of the country, the reform process had to be a gradual one so as to reduce the costs of adjustment The 1992-93 Budget, reduced the maximum import duty from 150 per cent to a maximum of 110 per cent, with the exception of passenger baggage and alcoholic beverages Greater thrust was given on reduduction of import duty on capital goods, because high duty on capital goods constitutes permanent increase in the cost of production The import duty on project imports and general machinery was considerably reduced

In Phases

The restructuring of customs duties attempted in the 1992 budget was only the beginning of a process The customs duties are to be gradually reduced over a three to four year period to levels comparable with those in other developing countries

The Final Part of the Reforms Committee Report gave detailed proposals regarding rates of import duty in respect of major commodity groups. In regard to customs duties, the general thrust of the Committee's recommendations was that while the market should have a large role to play, the structure of import duties should be used to achieve the long term goals of industrialisation and to further the strategy of dealing with the world market Thus a single rate of import duty may not be very appropriate for a developing country like India There can be a limited number of rates with a

(Continued on page 23)

Hisar Cantonment Shows The Way

THE challenge of environment requires joint action of the people, the Government and non-government organisations. India's armed forces are also conscious about their role in strengthening the environment base of the country A shining example is Hissar Cantonment

Even a decade ago any reference to Hissar Cantonment used to conjure the image of a place perched on sand dunes and bushy landscape swept by dust storms Hot winds carrying a load of sand and dust was the usual feature But now there is a sea change–a caressing touch of cool breeze blown by the fluttering green foliage of ornamental and shady trees One can see rows and rows of shisham, amaltash, eucalyptus, jamun and sheerash trees filing past the roadsides Multi coloured bougainvillea, bottle brush and other ornamental plants provide decorative look to the area around living accommodation, office complexes and messing apartments

It is indeed a saga of great success made possible by the men and officers of the Army formations and units located in the Cantonment When the land was acquired in the early eighties, there was only one large tree in the station and the entire area had only sand dunes, interspersed with a few bushes and shrubs The formations and the units located in this Cantonment have contributed their share in planting lakhs of trees, ornamental plants, fruit trees and all types of shady trees which can withstand dust storms and can stay alive even with less water and in saline conditions

Massive Afforestation

Soon after the takeover of the land, a massive afforestation programme was launched with the assistance of the Haryana State Forest Department, and about four lakh trees were planted Subsequently over the years tree plantation went on till the entire area was covered.

Hissar Cantonment experiences extreme hot and cold climate with scanty rainfall. Keeping the climatic conditions in view only shady trees were planted to check soil erosion and to have cooling effect during hot summer Amaltash and bottle brush were planted along the roadsides for beautification and bougainvillea planted on road dividers giving them an ornamental look Most of the ornamental trees are of a permanent nature The types of ornamental plants beautifying the Cantonment include bougainvillea of different colours, kaner, gudhal, aliar, morphonkhiri, tikoma, ashok pandula, gulmohar and keshia shamia Mostly shisham, neem, sheerash, papri, jamun, bargad, bottle brush, amaltash and akashmauni trees have been planted in the Cantonment and also in the training areas and along the boundaries of the playgrounds

Apart from shady and ornamental trees, fruit trees like grapes, ber, lemon, keenu, guava, papaya, mulberry, jamun and anar have been planted in the Cantonment On the outer periphery of the orchards, jamun and shahtoots have been planted in large numbers. With the plantation of fruit trees, sufficient quantity of fruits are available for consumption in the Cantonment area

Bio- Diversity

Fruit trees attract birds and insects by providing them food and shelter for breeding purposes which helps in ecological balance and converting the desert into lush green island

In the Cantonment, two deer parks have been set up where more than a dozen deer live in natural surroundings. Deer Parks are a source of entertainment to the children The Army formations intend to establish another centrally located bigger zoo, where deer can multiply faster A mini sanctuary for the birds is also being set up The military station has a large herd of blue bulls too, which are a delight to the nature lovers Picnic spots are being developed in the Cantonment by landscaping the area and construction of water ponds The station plans to have a nature club in each Brigade area and to create environmental cells in all formations This club will be responsible for coordinating all activities regarding plantation of new saplings and preservation of the flora and fauna

The Haryana State Council for Science and Technology and the Department of Non-Conventional Energy Sources have adopted the Hissar Cantonment for non-conventional energy projects Wind mapping projects to record the wind data have been installed in the Cantonment and more than two dozen biomass gassifier generators are being installed for power generation. Apart from this, solar water heating system and solar power lighting system would be made available in the Cantonment to conserve the forests

The military station has drawn an ambitious plan to make Hissar Cantonment an ideal lush green station The day is not far when this place will emerge as one of the greenest Cantonments of the country ❒

Crucial Transport Facilities In North-East

THE North Eastern region of India, a unique land of great scenic beauties, colourful tribes with age-old traditions and vast untapped natural resources is connected with the rest of the country by a slender strip of land called Siliguri Corridor The development of the region has suffered over the years because of a far from adequate transport and communication infrastructure

The region has vast potentials which can be harnessed to the advantage of the region and to the nation as a whole It is only possible if the basic infrastructure is built with reliable com[illegible]unication facilities

Before Independence, the main access to the region was through river services in the Brahmaputra and Barak Valleys The Assam–Agartala highway was the major road link The Brahmaputra Valley was connected by rail from Karimganj and Silchar. Mule tracks and porter tracks provided the normal communication links in the interiors Small airstrips constructed by the administration and tea gardens were utilised by some private airlines

After Independence

The Central Government realised the strategic importance of the region afterIndependence and high priority was accorded to the development of the transport and communication infrastructure The Assam rail link and the National Highway No 31 were some of the earliest projects taken up immediately after independence The first ever rail-cum-road bridge across the Brahmaputra was completed in 1962 at Saraighat near Guwahati

A number of roads were thereafter constructed to provide important links and some of the important roads were declared as National Highways A road bridge across the Brahmaputra at Bhomaraguri near Tezpur was completed in 1987 at a cost of Rs 90 crore. An additional broad gauge railway line upto Guwahati was also constructed Air links were improved by introducing Indian Airlines and later Vayudoot services to connect smaller airports

The Railways have so far constructed railway lines mainly in the Brahmaputra valley However, only very short lengths have entered into Arunachal Pradesh, Manipur, Mizoram, Nagaland and Tripura Most of the lines are in the metre gauge

New constructions include a major rail-cum-road bridge which is under construction across the Brahmaputra at Jogighopa/Panchratna The bridge will facilitate movement of rail and road traffic from one bank to the other. A new railway line broad gauge is under construction from Panchratna on the South Bank to Kamakhya near Guwahati

The North Eastern region being predominantly hilly, it is very expensive and time consuming to extend rail links and construct airstrips Roads, therefore, in general have to take the major share of movements of goods and human cargo

The conditions of the roads in the region are below the desired level. A large number of bridges are of temporary nature made of timber Maintenance of such bridges is a recurring problem and costly as good quality timber is not available.

Road Network

The cost of construction of roads in fragile mountains is very high In such a high rainfall area with geologically young mountains, roads are prone to receive landslides in monsoon which cause large scale damages The maintenance of such roads is, therefore, equally costly Majority of the roads in these States have either been constructed by the Border Roads Organisation or through funds from the North-Eastern Council (NEC) Nearly 7,000 kms of roads were taken up for construction or improvement since the inception of the NEC Nearly 60 per cent of these were new roads and about 40 per cent of the existing roads are being improved

The Indian Airlines operates at eight stations in the region The North-Eastern Council has been supporting the National Airports Authority (NAA) in strengthening and improving facilities at the airports of the region since 1989-90 NAA is being supported by the Council to the extent of 60 per cent in sharing the cost of various facilities like navigational aids, communication aids, extension of runway, night landing facilities and passenger amenities for 13 airports and airstrips in the NE region Till 1991-92, an amount of Rs 6 crore has been paid to the NAA.

The Central Inland Water Transport Corporation Ltd., a Government of India Undertaking which was formed in 1967, plies its vessels from Calcutta to Assam along the rivers Brahmaputra and Barak. The Inland Waterway Authority of India (IWAI) is responsible for development and maintenance of national waterway. The Brahmaputra river was declared as the National Waterway No. 2 from Dhubri to Sadiya in 1988

BRDB

The Border Roads Development Board was set up in March 1960, for accelerating the economic development of the North and North-Eastern region and for strengthening defence preparedness, through rapid and coordinated development of road communications. Since then, the Organisation has constructed and upgraded a number of roads in sensitive border areas and hilly terrain of the North-Eastern region

The construction of major permanent bridges over turbulent rivers in the North and North-Eastern region has been a challenge to the organisation and it requires great engineering skill. This challenge is being met by the Organisation, partly through its own efforts and partly through major bridge constructing contractors.

During the current year, many permanent bridges have been completed and opened to traffic in the North-Eastern region. Recently, six roads of 218 km approximately, in the hilly and inaccessible areas of Assam-Meghalaya and Tripura were also completed and handed over by the Border Roads Organisation to the respective State Governments for maintenance. ❐

(Continued from page 20)

minimum rate of 5 per cent on essential goods, a low rate of 10-15 per cent for basic raw materials and slightly higher rates for capital goods and parts and still higher rates for chemical intermediates Final products could attract the rate of 30 per cent By 1997-98, the import weighted average rate of duties should generally be brought about to 25 per cent

The Committee stressed the need to strengthen the anti dumping provisions to ensure that domestic industries are not denied legitimate protection against dumping by foreign exporters It also says that as a general principle, no item should be exempted from countervailing duty as this reduces the level of protection to domestic goods

VAT System

In the context of excise duties, the Committee's recommendations were in favour of a duty regime in which the maximum rate will not exceed 50 per cent with a few exceptions like cigarrettes , The main thrust was for moving towards a full fledged VAT system which would cover not only goods but also services. It also recommended that MODVAT scheme should be extended to other areas also

The process of reforms was further continued in the Budget for 1993-94 in which the maximum rate of import duty was reduced to 85 per cent with the exception of baggage and liquor The other steps include merging of the basic customs duty with the auxiliary duty; reduction of import duty on capital goods; rationalisation and reduction of import duty on metals (both ferrous and non-ferrous), electronic industry (raw materials, piece parts and components) and chemicals and petrochemicals (basic feed stocks, intermediates and finished chemicals)

On the excise side, the major rationalisation in the budget for 1993-94 was the merger of special excise duty with the basic excise duty and reduction of excise duty on capital goods and instruments to 10 per cent and to an even lower rate of 5 per cent for the power sector The maximum ad valorem rate of excise duty, which was as high as 120 per cent, was reduced and brought down to 70 per cent (with the exception of cigarettes) The small scale duty exemption scheme was also rationalised

The Committee's recommendation to move towards a Value Added Tax System can be introduced only after there is a broad consensus amongst the Centre and the States In order to have an informed national debate on this issue, the National Institute of Public Finance and Policy (NIPFP) has been entrusted with the preparation of a scheme of Value Added Tax.

Further Work

The major areas where further work needs to be done are in broadening of tax base by bringing hitherto exempted articles under the duty net, removal of end use based exemptions and extension of MODVAT to service sector, and rationalisation of MODVAT scheme and giving credit of duty for all inputs without any qualifications.

While there cannot be any objection in principle to the inclusion of more and more items in the duty net, the fact that the taxation system in our country has been used to achieve certain socio-economic objectives has to be taken note of This is necessary in a country where reliance on indirect taxes is heavy and the burden falls more heavily on the poor. So it is imperative that the Government has to carefully examine the rationale behind all the exemptions to ensure that the burden on the poorer section is not increased Regarding taxation of services, it will require further examination as to the legislative measures required in the light of constitutional provisions. NIPFP is being requested to bring out the full implications of such a scheme detailing the examples of other countries ❐

Granite Industry In India

GRANITE is a minor mineral under Mines and Minerals (Regulation and Development) Act, 1957 and is administered entirely by the State Government. Granite of various colours are widely distributed in India Systematic reserves estimation of granite in the country has not yet been done so far However, reserves estimated in parts of some States are given in Table-I Granite quarrying is, however, restricted to a few centres in Andhra Pradesh, Gujarat, Orissa, Karnataka, Rajasthan and Tamil Nadu The important occurrences are as follows.

Andhra Pradesh The State is endowed with granites of export quality Most important deposits occur in Chittoor, Hyderabad, Khammam and Warangal districts Pink, porphrry and grey granite deposits are available in Karimnagar, Kurnool, Prakasam and Anantapur districts Grey or flesh coloured granites are also available in Hyderabad, Khammam, Warangal and Ranga-Reddy districts Black granite (dolerite) is available near Khammam in the form of radial dykes Syenites near Elcheru in Guntur district and Kunavaram in Khammam district are also reported to be ornamental stones Dolerite available in Kuppam and Palamner taluks in Chittoor district are well known since long for granite production used as ornamental stone There are about 400 leases for black and coloured granites in this State Of these about 230 are for black granites and remaining for pink and multi coloured granites

Assam. Pink and grey varieties of granites are located in Karbi Anglong area Black granite of good quality are known to occur in Nowgong and in Goalpara districts Black granite deposits are also located in Agia area in Goalpara district

Granite deposits of ornamental quality are also extensively distributed in the Central and lower parts of Assam around Mahamaya Hills, Centre Bazar, Burapahar, Amguri, Dudkeri and Dukhdaham areas of Kamrup district

Bihar. Granites and gneisses of good variety occur in many districts of Bihar They are geologically known as Chhota Nagpur gneiss, dome gneiss and Singhbhum gneiss

Granite from Kharagpur Hills in Monghyr district is stated to be useful as building and ornamental stones Granite gneisses of Bagdiserentoli and Chhota Nagpur areas in Ranchi district are used as building stone

Rajasthan Deposits of pink granites are located at Kalkaji area in Jalore district, and Barmo and Sumarpet in Sirohi district Deposits of black granites are found at Bidiar and Talera areas in Jalore district There are some good black granite deposits in Alwar district also There were 25 leases for granite in 1986-87, which increased to 82 in 1988-89 and 153 in 1989-90

Karnataka In Karnataka, pink, grey and black varieties of granite occur over large areas in Bellary, Bijapur, Dharwar, Raichur, Kolar, Mandya and Mysore districts A rough estimate of ornamental granites of popular varieties to a depth of 10 metres, particularly in leased areas, places the reserves of pink granite at 153.5 million tonnes, black granite at 14 million tonnes and grey granite at 68.8 million tonnes in Bangalore, Tumkur, Mysore and Bellary districts Another estimate puts the total reserves in Karnataka at 234 million tonnes.

Madhya Pradesh The State has widespread occurrences of various shades of granite Pink granite is found in Tikamgarh, Chhattarpur, Shivpuri and Datia districts Baster and Balaghat districts have grey, pink and green granites Grey granites are also found in Jabalpur, Rajnardagaon, Raipur, Bilaspur and Mandla districts No systematic assessment has been made of the exploitable reserves

Maharashtra Pink granite occurrences have been located in Hannuman, Hipparga, Degloor, Minjalga, Ajni and Borgaon villages and grey granites in Chaipur, Shahpur, Degloor, Wazargeon Achegaon and Bhaigaon villages in Nanded district

Gujarat Blackish diorite is found near Rupawati in Amreli district Pink coloured feldspar porphyry variety is available at Bedia and Khamba in Gir forests Banaskantha, Sabarkantha, Vadodara and Pench Mahal districts also have granites which yield Ornamental stone of significance

Tamil Nadu: In Tamil Nadu, black granite (dolerite dykes) of varied dimension are known to occur widely in North Arcots, Dharmpuri and Nilgiri districts and multi-coloured grey granites occur in Krishnagiri district. Pink and grey granites have been traced in South Arcot, Coimbatore, Madurai and Tirunelveli districts Besides, these ornamental granites and granite gneisses

Table

Reserves of Granite in some States in India

Sl No	State	Estimated Reserves (In Million cu m. (M3)	Remarks
1	Andhra Pradesh	3 0	By one private party only
2	Assam	43 5	In Karbi Anglong area only
3	Karnataka	55 7	–
4	Bihar	19 0	–
5.	Rajasthan	0 08	8,750 M3 to depth of 25 m in Nuan area and 7200 M3 to a depth of 20 m in Kalkaji area of Jalore district
6	Tamil Nadu	1 7	Black granite only, exploitable reserves of grey multi coloured granites may be of the order of serveral million M3 as indicated by the DGM Tamil Nadu
7	West Bengal	7 0	–

Note 1 Based on information available with Indian Bureau of Mines

2 Detailed inventary on granite is under preparation by Indian Bureau of Mines

of various colours are also reported to be available in part of Chingleput, South Arcot, North Arcot, Tiruchirapalli, Pudukottai, Salem and Ramanathapuram districts

Uttar Pradesh Granite suitable for dimensional blocks have been identified in Mahoba, Kabrai, Charkhari, Dhara, Linda, Dharaun Utiyan, Gunj and Takman in Hamipur district and Mataudh, Girwan and Karaini in Banda district Besides, occurrences have also been located in Jhansi and Lalitpur districts The granite is pink and grey in colour, medium to coarse grained, equigranular, massive and compact in nature

West Bengal Granite resources in West Bengal is chiefly confined to Bankura, Birbhum and Purulia districts. The porphyroblastic granites, which are very hard and durable occur in Purulia district and medium grained granite is found in Birbhum district

Production

The total granite produced in the country during 1990-91 was 1 6 million tonnes with a value of Rs. 43 crore giving unit value of production Rs. 271 per tonne during 1990-91.

The unit value of production of granite varies from one State to other state As for example the unit value of production during 1990-91 was high in Andhra Pradesh i e. Rs 1,169 per tonne whereas, it was low in Karnataka and Rajasthan– Rs 489 per tonnes and Rs 124 per tonne respectively

Processing of granite is done by 100 per cent Export Oriented Unit (EOU) as well as by large/medium and small units As per the latest statistics of Ministry of Commerce, there were 412 cent per cent EOUs have been approved in the different states Andhra Pradesh is one of the leading state in quarrying, processing and exporting of granite About 150 enterpreneurs have already been issued 100% EOUs licences for granite Out of these about 22 units have already been implemented and another 20 units are in various stages of implementation Besides these, 57 permanent SSI granite cutting and polishing units are also established in Andhra Pradesh. In Karnataka, 67 licences for 100% EOUs have been issued for granite processing in addition to so many other large/medium and SSI units which are running in the State In Tamil Nadu 133 licences have been issued for 100% EOUs units Of late, Rajasthan (25 EOUs), Orissa (10 EOUs), Gujarat (3 EOUs), Maharashtra (11 EOUs), Madhya Pradesh (4 EOUs) and Pondicherry (3 EOUs) are also coming up amongst the major producers of granite in the country.

Exports

During 1991-92 the total export of granite was 715 thousand tonnes valued at Rs. 374 crore. Of this, roughly trimmed types share 71 5 per cent, cut blocks 22.5 per cent, polished block/tiles 5 per cent and others 1 per cent in the total quantity of exports. In the total export value of Rs. 374 crore, crude and roughly trimmed shares 47 per cent, cut blocks 23 per cent polished blocks/tiles 24 per cent and others 6 per cent. Unit value realisation of different types of exported granite in 1991-92 are computed at for crude and roughly trimmed Rs 3,462, cut blocks Rs 5,181, polished Rs 26,587 and others Rs. 23,924.

Data on exports of granite for the year 1991-92 shows that Japan (35%), Italy (20%), USA (12%), Chinese Taipe (7%), Belgium (4%), U K. (4%), Netherlands (3%) and Korea Rep (2%), were the major importers of all forms of granite from India During 1991-92, Italy (34%), Japan (28%), Chinese Taipe (10%) and Belgium (7%), were the major importing countries for crude/roughly trimmed granite and Japan (56%), Italy (14%) and Chinese Taipe (7%), were the major importers of cut blocks and slabs. It also appears that Japan (32%), U S.A (30%) and U.K (9%) shared the major part of Indian polished granite exports and during the same year USA (34%), Japan (22%) and U.K. (18%), were the leading importers of other forms of granite ❐

Planning Integrated Development Of The North-East

Dr. A.N. Sarkar

NORTH Eastern Region is considered to be the origin of many plant species Botanical Survey of India has so far identfied nearly 10,000 such plant species, which by virtue of bio-diversity, can be suitably exploited for agricultural development in a self-supporting and sustainable manner The agriculture resource base essentially comprises a wide range of plant species of cultivable field crops, fruits, vegetables, species, orchids, mushrooms, flowers, ornamentals, medicinal and essential oil yielding crops, plantation crops, honey bees, silk worms and silk rearing plants, rare species of fishes, livestock, fowls, ducks and various other endemic animal species of commercial importance What is needed is to harness this precious and diverse resource base in a planned, systematic and integrated manner to achieve higher productivity and balanced socio-economic development of the region.

The region, characterised by a wide spectrum of agro-climates ranging from tropical-humid to alpine-temperature, and rich in bio-genetic resources is congenial for multifarious agricultural development. For instance, maintaining the current level of technologies, region's present production level of food grains, estimated at 4.50 million tonnes from 4 15 million hectare, can be raised to 7.80 million tonnes from 6 hectare arable lands to feed about 50 million people of the region by 2000 AD. However, by resorting to improved package of scientific technologies the level of production and productivity can be augmented manifold. This can make the region not only self-sufficient but surplus in food grains and vegetable oil production by 2000 AD and beyond.

The major fruits and vegetables that can be abundantly grown in the different parts of the region presently contribute about 45 lakh tonnes from 4 9 lakh ha area, leaving a gap of about 15 lakh tonnes to meet food and nutritional requirement of the region. The region has successfully demonstrated a pontential for commercial cultivation of high-value, low-volume and relatively non-perishable spices such as ginger, turmeric, chillies, large cardamom, cinnamon, black pepper, tezpatta etc. The present productivity of these crops is estimated at 2 17 lakh tonnes from 69 thousand ha area which can be expanded five fold to realise full potential. Varieties of colourful and ornamental flowers, splendid orchids, mushrooms (both wild and cultivated species) are also grown in many parts of the region From the stand point of favourable agro-climates, it is projected that horti-plantation programmes can be expanded horizontally in a cummulative area under jhum lands, degraded forests, waste lands and reclaimed land under catchment areas and watershed management projects. This should be possible through integrated approach to horticulture development aiming to step up the horticultural productivity in the region to 30 million tonnes–60% of which could be treated as marketable surplus. This surplus horticulture produce in turn can serve as a backbone for setting up horticulture based and phyto-chemical industries in the region.

The region has bountiful water resources in variable forms viz. rivers (19198 Km) , reservoirs (8,123 ha), jheels/lakes (1,43,700 ha), ponds and tanks (41,624 ha), low-land paddy fields (4,80,000 ha) etc. The present fish productiion of 1 71 lakh tonnes is just about sufficient to provide 5 70 kg fish per capita against the standard nutrition needs from fish as a dietary source The region requires 3.25 lakh tonnes of fish at the moment and 4 00 lakh tonnes by the turn of century For attainment of self-sufficiency, there is, therefore, a clear need to expand and intensify scientific fish culture in the potential areas harnssing suitable water resources

Similar to fishery development, wide demand-supply gap exists in the sector dealing with versatile foods of animal origin For example, against 3 lakh tonnes requirement of meat and meat products, only 60 thousand tonnes of these products are being produced domestically Current egg production hovers around 560 million against the region's requirement projected at 4000 million

Such demand-supply gap has virtually compelled the N.E States to resort to import of food grains worth Rs 800 crore and livestock and poultry products to the tune of Rs 1000 crore annually impinging heavily on financial resources, otherwise to be used for multifarious socio-economic and developmental activities

In essence, the above scenario leaves very little option but to augment

agri-horticulture-livestock productivity rapidly through full scale exploitation of resource base to achieve self-sufficiency as also generate marektable surplus

Inhibiting Factors

Despite agro-climatic feasibility, a large number of technological, ecological, socio-economic and cultural factors have, over the years, inhibited the desired pace of agricultural development. The predominant limiting factors of these categories seem to include· (i) erratic distribution and long spell of high-intensity rainfall, followed by alternate cycles of flood/innundation and drought/water stress (ii) extensive forest degradation and jhuming leading to colossal loss of soil, water, nutrient and bio-genetic resouces (iii) inadequate, untimely and inefficient supply of critical inputs (mostly of poor quality) through weak delivery systems (iv) lack of availability and inadqequate supply of high quality germplasms with pest and disease resistance This apart, inefficient soil and water conservation, improper soil amelioration, lack of extention support and entrepreneurship development, inadequate availability of expertise and skilled manpower have substantially contributed to low agricultural productivity of the region

With a view to overcoming these inherent and long standing problems the following development al strategies may be advocated for the region, in general terms

(a) To explore and exploit potential ground water resources for conjunctive use with minor irrigation facilities to areas hitherto not covered by traditional irrigation net-work This effort may be complemented with dry farming technologies, drip irrigation systems, plasticulture etc to circumvent water stress conditions and drought effects in post-monsoon period

(b) Expansion and intensification of multiple cropping programmes in irrigated areas to boost agricultural productivity

(c) High density plantation of horti-plantation crops with mixed and relay cropping options in non-irrigated and hilly areas to achieve higher productivity and better economic returns from investment

(d) Conservation and model land use of jhum lands, degraded forest lands, wastelands, treated catchment and watershed areas with diversified and composite farming approach involving suitable innovation of agri-horti-pastoral systems, dairy, piggery, poultry duckery, sericulture, apiculture, pisciculture etc for maximising over-all productivity and farm income from unit land in unit time.

(e) Popularisation of composite livestock, poultry and piggery farming with proper integration with fish farming, wherever feasible, to help bridge demand-supply and protein-calories gaps affecting vast populace of the region

(f) Creation of adequate infrastructure for marketing of fresh agri-horticultural and livestock-based products as well as setting up of small scale post-harvest facilities, agro-processing and food preservation units to help minimise spoilage and production of high-value, low-volume products in order to generate additional employment and income

In clear recognition of the presence of vast natural resources potential, North Eastern Council has played catalytic roles in the holistic development of agriculture in the region Starting off from the Fifth Plan, the Council has been laying considerable emphasis on development of agriculture and allied fields together with irrigation, flood control, afforestation, jhum control, soil and water management in an integrated manner Some of the salient features of achievement are highlighted here sectorwise

Agriculture: Considering criticality and regional priority, six pilot projects on shifting cultivation with focus on soil and water conservation were initiated, two each at Mizoram, Manipur and Tripura in the Fifth Plan Under the programme, 5,300 jhumia families were settled in 11,300 ha affected area. The project with further ramifications in terms of coverage of additional catchment and watershed areas as well as beneficiaries was continued during the sixth Plan in 10 macro watersheds, namely Siang (Arunachal Pradesh), Range (Assam), Dedrum (Meghalaya), Iril (Manipur), Dhakswari, Palak, Chanpur (Mizoram), Mangiew (Nagaland), Howhra, Manu (Tripura) These programmes had achieved desired demonstration effects in terms of efficient soil and water management and practising diversified agricultural activities predominantly by the shifting cultivators

The various thrust areas of development in agriculture during the 7th NEC Plan were those of establishment of a Regional Centre of biofertilisers, input testing laboratories, Training-cum-Demonstration Centres of mushroom production, Breeders' and Foundation Seeds Farms for cereals, pulses, oilseeds, cotton etc, pilot project on dryland agriculture, demonstration of water harvesting technology etc The thrust on watershed management programmes, however, continued by way of taking up 9 additional Pilot Projects located at Popumpoma (Arunachal Pradesh), Hiri Hiri (Assam), Shingo Tsuong and Dikhu (Nagaland), Teirei (Mizoram), Umtongphar (Meghalaya), Luangleima (Manipur), Rangacherra and Maharanicherra (Tripura) These Projects were normalised and activities continued in the State Plan during the Eighth Plan For providing regional facility for training on ecological conservation and scientific use of land and water resources, two regional centres, namely Soil Conservation Training Centre and North Eastern Regional Institute of Water & Land Mangement were established at Byrnihat and Tezpur respectively during the Seventh Plan period

All these priority programmes have substantially contributed in building up adequate infrastructure as also in developing sound technological base needed

for systematic development in the critical areas of agriculture for the region.

Horticulture: In the Horticulture sector, 23 pioneering projects were supported by NEC during the Sixth & Seventh Plan period Through these programmes of innovative and pilot nature, NEC's efforts have been directed towards development of mass propagation of temperate fruit nurseries, establishment of regional vegetable seed farms, Foundation Potato Seed Farms, Orchard-cum-Nurseries for citrus, spices, tea, coffee etc, development of minor forest products, identification and cultivation of medicinal and tuber crops, promotion of floriculture, establishment of a Regional Fruit Processing Plant etc. Basic infrastructural facilities have also been created for processing of quality coffee, tea and rubber by establishing processing factories for these commercial crops at Guwahati (for coffee) and Agartala (for rubber and tea) in the Sixth & Seventh Plan respectively To promote and effectively coordinate marketing of surplus agri-horticultural produce, the North Eastern Agricultural Marketing Corporation was set up by NEC during the Sixth Plan

A model project on cultivation of a medicinal plant, namely *Dioscorea floribunda*, made significant progress covering 80 ha area. This project continues in the Eight Plan for using *Dioscorea* tubers as a source of Diosgenin through setting up of an Extraction Cum-Processing Plant at Agartala. The project is in the advanced stage of commissioning On successful completion, this plant would produce 5 MT of processed diosgenin to be utilised as a precursor for anti-fertility drugs preparation.

These programmes, being location-specific and of mutli-disciplinary nature, have contributed to planned development of horticutlure, especially in the hilly areas of N.E. Region.

Animal Husbandry & Fisheries: Twenty five pilot projects were implemented in Animal Husbandry sector in the Seventh Plan. The key areas of development comprise animal breeding programmes, artificial insemination programme and production of quality animal and poultry vaccines by setting up an Institute of Veterinary Biologicals at Khanapara, Guwahati To assess the potential and feasibility of taking up appropriate programmes, survey of fishery resources and availablility of fish seeds was supported by NEC during Sixth & Seventh Plan This followed establishment of 12 fish seed farms, reclamation of jheels and ponds and establishment of a Fishery Training Centre at Raha (Assam) for rendering advanced training to personnel on fishery technologies

Soil & Water Conservation: The emphasis during Seventh Plan has also been focused on treatment of catchment areas affected by major hydroelectric Projects in order to minimise soil erosion hazards and help prolong the life-span of reserviors. Given these objectives, NEC has sponsored undertaking the following afforestation schemes in the major project areas(a) Umiam Hydroelectric Project in Meghalaya (b) Loktak Hydroelectric Project in Manipur (c) Kopli Hydroelectric Project in Meghalaya and (d) Doyang Hydroelectric Project in the upper catchment in Nagaland

Sericulture: NEC has financed 37 sericulture Projects in Fifth Plan & 39 projects during Sixth Plan involving cultivation of feed plants and production of mulberry, Eri and Oak Tassar silk. During Seventh Plan several schemes on reeling, weaving etc have also been implemented in all the N E. States. The various state-run sericulture units numbering 700, employ about 3000 workers in the sericulture industry in the region. This exemplifies the magnitude of employment potential in the sector During the Seventh Plan, increased emphasis has been laid on mulberry culture and with the introduction of oivoltine rearing tools in the region, it is expected that sufficient quantities of cocoons would be available for commercial exploitation. With the World Bank and SIDA assistance concerted efforts are now being made to develop 4000 acres of land with mulberry plantation together with establishment of supportive ancillary units in Sibsagar and Jorhat Districts in Assam

Consistant with the national policy and in keeping with regional priorities for North East, NEC has laid emphasis on taking up major regional projects with productivity orientation and this approach has been clearly reflected in NEC Eighth Plan Thus, four regional projects have been launched during Eighth Plan to attain self-sufficiency in agriculture, horticulture, fishery and animal husbandry These are (i) Development of Apiculture for commercial exploitation in N E. Region (ii) Market support to Agri-horticulture produce (iii) Integrated Fishery Development Project (iv) Development of Foods of animal origin Of late, at the instance of the Ministry of Agriculture, NEC has formulated a Comprehensive Project on 'Integrated Horticulture Development of N E Region' for financial assistance by the World Bank

The Integrated Horticulture Development Proejct has been conceived as a Model Multi-disciplinary and Multi-Component Project to be implemented through joint participation of multiple agencies Broadly, the participating agencies are expected to be the private sector, public sector and cooperative sector, who are to be involved through appropriate institutional arrangements in a cost effective basis and coordinated manner The central government's recent policy of introducing Small Farmers' Agri-Business Consortium (SFAC) will go a long way to take full advantage of the opportunities that might open up under the Integrated Horticulture Development Project ❐

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Project Monitoring

As the Management Services Arm of the Government of India, the Department of Programme Implementation (DPI) was set up in 1985 to take up monitoring of Central Projects, and key infrastructure sectors including the social sectors. Monitoring to be objective, it was realised, should be independent of planning as well as implementing agencies to a reasonable degree. Over a period of time the Department has built a rich data bank, acquired professional expertise and developed capability for carrying out objective monitoring and evaluation.

It has three functional Divisions, namely, 20 Point Programme, Infrastructure and Project Monitoring Division In addition, there is a General Administration Division to provide support services

The Project Monitoring Division of the Department monitors project in the central sector costing Rs 20 crore and above. It also facilitates their smooth implementation through problem solving initiatives and system improvements It has created awareness about the impact of time and cost overruns not only on the project itself but also on the national economy as a whole among the managers in the public sector enterprises and also in the top echelon of the Government The studies carried out by the DPI reveal that a project, however, well formulated, cannot be implemented effectively unless the art of project management is improved and proper management tools and techniques are adopted

Monthly Monitoring

DPI monitors all mega projects (costing Rs. 1,000 crore and above) and major projects (costing Rs. 100 crore to Rs 999 crore) through Flash Report System which is based on the monitoring of major milestones drawn on the basis of PERT Network or barcharts The reports received either through online NICNET System or through other fast communication methods are processed The reports generated are examined by the respective ministries and also by the DPI Based on the feedback from the project authorities and DPI's analysis, Exception Reports are drawn for each project which is a one page action document

All medium projects (costing Rs 20-99 crore) are monitored on quarterly basis The physical and financial performance of all such projects is reviewed and the status brought out in a report on all projects on the DPI's monitor called Quarterly Project Implementation Status Report *Regular Reporta·* These are three

(i) The Monthly Flash Report on Mega and Major Projects,

(ii) The Monthly Exception Report on Mega and Major Projects, and

(iii) The Quarterly Project Implementation Status Report

These reports are circulated for the use of the highest levels in the Government, i e , the Prime Minister's Office, Cabinet Secretariat and the Planning Commission The reports are circulated to the respective controlling Ministries as well A status of all projects is also submitted for the information of the Cabinet each quarter Besides these management information reports, the officers of the Project Monitoring Division keep a constant vigil on all major projects and those having problems requiring close interaction

It assists the Public Investment Board of which Secretary, DPI, is a member. It examines all new projects from the point of view of the state of preparedness for implementation. The emphasis is on the realistic and sound implementation schedule, availability of funds to match the project requirements during implementation, the adequacies of cost estimates, and the strength of the project organisation to implement the project effectively and efficiently. In the case of the revised cost estimates of the ongoing projects, the Project Monitoring Division analyses causes of time and cost overruns with a view to fixing of responsibility and learning lessons for future

The DPI with its body of knowledge and computerised monitoring system has the capability to look at the project in totality. It brings out the issues and problems in different projects through notes to the Committee of Secretaries for consideration and direction.

Present Scenario

As on 1st January, 1993 there were 30 mega projects costing Rs 63,729 crore, 112 major projects costing Rs. 35,402 crore and 161 medium projects costing Rs 78,649 crore on the monitoring system of DPI In all there are 303 projects costing Rs 1,06,995 crore

The analysis of time and cost overrun with respect to the latest approved date of completion and cost shows that 177 projects have time overrun ranging from 3 to 145 months The delays in certain sectors like Coal, Hydro-Electric Power Project, Railways and Surface Transport stand fairly high, while in others the range of delay is comparatively low· 165 projects out of 303 projects have cost overrun with respect to their latest approved costs. The overall increase in cost of these 165 projects

(Continued on cover page 3)

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Credit Policy In Tune With Reforms

K.Sukumaran

SINCE July 1991, the Indian economy has been witnessing wide range of reforms in all sectors of the economy viz. financial, industrial, fiscal, trade, agriculture, etc. The Report of the Committee on Financial System submitted by Shri M. Narasimham and the action taken by the Government on several of the recommendations mark a breakthrough in the era of financial liberalisation. The opening up of the economy to the private sector has gained momentum with the announcement of the New Industrial Policy in August 1991 aiming at increasing efficiency, competitiveness and integration of Indian economy with the world economy. The Chelliah Committee Report on taxation went deeper into tax reforms and advocated the need for simplified tax structure in India. With a plethora of trade reform measures through reduction of high tariffs, removal of quantitative restrictions on imports and full convertibility of Indian rupee, our exports started showing an upward trend. To make the economy move on the path guided by the liberalised industrial policy a massive overhaul of the agriculture sector is on the cards through changes in the Public Distribution System, Essential Commodities Act, removing commodity specific controls, etc.

The reforms initiated in the economy have started yielding results even though the performance of some sectors of the industry is found to be tardy. The economy which has registered 1.2% increase in GDP in 1991-92 has started recovering with a 4.2% growth rate in 1992-93. The overall agriculture production in the year 1992-93 is expected to have recorded a smart recovery by 5.1% in contrast to a decline of 2.5% in 1991-92. The foodgrains output having a weight of 68% in the overall agriculture production has reached a record level of 181.2 million tonnes in 1992-93 from the level of 167.1 m.t. in 1991-92. The industrial sector has registered a growth of 3.6% and the services sector 4.4% during 1992-93. The performance of the economy during 1993-94 is expected to be a little over 4% as per the forecast made by Centre for Monitoring Indian Economy. The price situation in the country has been brought under countrol with a rate of 6.6% during the first half of the current financial year compared to the 6.3% in the corresponding period of the previous year. Thanks to a spurt in exports and softening of crude prices in the international oil markets, the foreign exchange reserves of the country excluding gold and SDRs touched an all time high of Rs. 22,803 crore in August 1993. The industrial production has been stagnant in the first half of 1993-94, expecting a recovery during the second half.

The busy season credit policy announced by the Reserve Bank of India on 11th October 1993 lends support to the government's economic reforms programme as well as helping to pull the economy out of recession without necessarily making money cheaper. How the policy addresses the key issues in the economy can be discussed in the following lines.

Investments: The Narasimham Committee has clearly emphasised the need for reducing the directed investments so as to allow the banks to deploy the funds at competitive rates in the market. The Committee has stated that SLR is to be brought down in a phased manner to 25% over a period of about 5 years. The Union Budget for 1992-93 announced the reduction in the incremental SLR from 38.5% to 30% w.e.f. 4th April 1992. The Reserve Bank of India through its credit policy for the second half of 1992-93 further reduced the SLR which helped in augmenting the lendable resources of banks by Rs. 4,150 crore. With effect from the fortnight beginning October 16, 1993 the SLR will be 34.75% and for any increase in liabilities above the September 17, 1993 level the SLR would be 25%. The cut in SLR by 2.5% from the high level of 37.25% is an indication that the authorities intend to accelerate the pace of the reduction so that it is brought to the level of 25% over three years.

Availability of credit: The credit policy aims at providing a package of measures to ensure adequate support by the banking sector to the revival of output in the economy. With a view to promoting larger flow of credit to the industrial sector and increasing operational autonomy to banks, the Reserve Bank of India has dispensed with the consortium arrangement for borrowers whose require ments are less than Rs. 50 crore. Hitherto borrowers seeking credit limits for more than Rs. 5 crore had to conclude consortium arrangement with banks. Now as a result of the change mandatory consortium arranagement will be applicable to only 76 large borrowal accounts as against 934 before. The raising of the consortium limit is expected to be a boon to small and medium sized companies whereas large borrowers are pleased with the flexibility provided through allowing to introduce new participants into the consortium. Also the banks can opt out of the consortium after a minimum period of two years and can have the option of syndicating credit limit. The R.B.I. is

likely to announce further guidelines in conformity with the proposals of the J.V Shetty panel on consortium lending. It is possible to remove the restriction on the maximum number of participants and impose a minimum amount of contribution by each bank in the consortium arrangement.

As a departure from the traditional inventory level norms, the existing guidelines for determining the maximum permissible bank finance as per Chore Committee recommendations are altered and banks are allowed to decide for themselves the levels of inventory holdings and receivables after taking into account the genuine needs of borrowers. The removal of inventory and receivable norms will in practice mean a dilution of the lending norms and enable banks to fix their own exposure limits Regarding adhoc credit limits banks are given the freedom to determine the period and quantum of limits without charging any additional interest

The bank's lending to hirepurchase and equipment leasing companies is raised upto four times the net owned funds as against three at present restricting the overall ceiling of borrowings to 10 times the net owned funds This is expected to increase the flow of bank credit to these companies To avoid undue delay, the R.B I has advised banks to process the credit proposals for new loans as well as renewals within the maximum period of three months

Priority Sector Credit: Under the overall stipulation of priority sector credit of 40% of the net bank credit and the subtarget of 18% prescribed for agriculture lending, direct and indirect categories of advances to agriculture had been clubbed However, lending for indirect agriculture should not exceed one fourth of the total agricultural lending. To support agricultural activities a line of credit of Rs 400 crore has been granted to NABARD. Previously advances to small scale industries having an investment limit of Rs 35 lakh and Rs. 45 lakh in case of ancillary units were classified as priority sector lending This has been changed in tune with the hike in investment limit of industries for being classified as SSIs. Advances made by banks to SSIs of investment limit of Rs. 60 lakh in plant and machinery and Rs. 75 lakh in case of ancillary units will be treated as priority sector advances. To ensure the flow of credit to small units it is stipulated that 40% of the SSI advances made by each bank should go to cottage, khadi and village industries and tiny units with investment in plant and machinery upto Rs 5 lakh. The Reserve Bank of India has clarified that failure to achieve the stipulated level of priority sector lendings or to achieve a distinct improvement in this sector would invite bank specific policies such as raising of reserve requirements or withdrawal of refinance facilities In the credit policy for the first half of 1993-94 announced in April 1993, foreign banks were directed to deposit the difference amount of their priority sector advances target and the actual priority sector advances in the bonds of SIDBI yielding 10% rate of return A sum of Rs 520 crore has been deposited with SIDBI for their failure to meet the priority sector lending in the current year so far

Export Sector: India's exports in the first four months of the current financial year were estimated at $ 6 92 billion recording a growth of 27.2%, indicating that the current year's target of $ 22 billion exports would be accomplished. The country's trade deficit during the period was $ 437 9 million as compared to a whopping $ 2121.7 million during the same period last year Thanks to the measures taken by the government to increase the export and the enhanced flow of export credit by commercial banks, the sector is poised to reach the targeted level of exports by the close of the financial year The export credit provided by the scheduled commercial banks crossed the figure of Rs 16,000 crore constituting 10.7% of the net bank credit against the target of 10% To give further boost to the export sector, Reserve Bank of India has introduced a new scheme–Preshipment Credit in Foreign Currencies (PCFC) wherein credit facility would be available in major currencies for financing export related imports at international competitive rate of interest. The scheme has been welcomed by bankers as they can deploy their foreign currency resources mobilised under various sources in this channel.

Money market: The policy changes affecting the money market include allowing financial institutions as borrowers in the market, removing the ceiling of the issue of Certificate of Deposit by banks, extending the maturity period of Commercial Paper, and increasing the ceiling of the holdings of PSU bonds by commercial banks Financial institutions such as IDBI, ICICI, IFCI, IRBI, SIDBI, Exim Bank and NABARD have been given access to the money market as lenders only Now they are allowed to borrow from the money market for period ranging from 3 months to 6 months within stipulated limits The permission given to the financial institutions to borrow from the call money market will deepen the market further The ceiling on borrowings by banks through CDs has been removed which enable banks to borrow without limit at the market rate and allowing greater flexibility for mobilising deposits at competitive interest rate. The guidelines governing the issue of Commercial Paper have been amended and companies are given the permission to issue CP for maturities between 3 months and less than one year from the date of issue. The minimum networth criteria has been scaled down from the existing Rs 5 crore to Rs. 4 crore and the minimum fund based working capital limit has been reduced to Rs 4 crore. It is expected that the number of players in this fast developing market will also increase due to the reduction in the requirements of networth and working capital limits.

To facilitate normalisation of the PSU bonds market and to lend support to PSUs, R B I has hiked the ceiling for investing in these bonds by banks from 1.5% to 5% of the incremental deposits

(Contd. on page 8)

Industrial Sickness And The Repurcussions

Dr. S.S. Khanka

GENERATION of employment opportunities has been an important objective of development planning in India However, the failure of employment opportunities to expand in tandem with the rapid increase in population has resulted in unemployment problem in India To quote, as against 2 2% per annum population growth during 1981-91, employment increased by 1 95% only, thus, resulting in unemployment of the order of 3 77% Besides, the growing industrial sickness has also, to a certain extent, aggravated the problem of unemployment following the closure of sick industries According to an estimate, on an average, 130 units go sick every day and the joblessness of about 3 million workers on account of closures of sick industries presents a grim prospect in the employment scenario of a developing country like India

In view of this, the main objective of this paper is to reveal the magnitude of employment loss following the closure of sick industries The paper is presented in two parts Part-I delineates the growing incidence of industrial sickness in India. Part-II focusses loss of employment following the closure of sick industries

The incidence of industrial sickness has increased exponentially during 1980-91. The number of sick units including weak units has increased by more than eight times (81 2%) to 2,23,809 in the end of March 1991 from 24,550 at the end of December 1980 and outstanding bank credit against them by nearly five times (495%) during the same period (Table 1).

One way of viewing at the growing incidence of industrial sickness is that during 1980-91 about 55 industrial units became sick every day. During the six months period (June 1988 to December 1988), the number of sick units has grown very rapidly from 2.19 lakhs to 2.42 lakhs, thus, an addition of another 23,000 units in the backlog of sick industries. The growing incidence of sickness covers all industries, sectors and regions. Nonetheless, it is important to mention that 99% of the sick units belong to the small sector alone claiming 26 per cent of total outstanding bank credit locked up in sick units Of course, the share of non-SSI sick units in terms of number is only 1% but in terms of outstanding bank credit these account for 74% of the total (see Table 1)

According to the data given in the Economic Survey 1991-92, out of 2,23,809 sick and weak units, as many as 2,03,972 units i.e., 91% are non-viable In other words, in every 10 sick industrial units, as many as 9 have become sick beyond cure i e, which cannot be revived. Obviously, these non-viable sick units are closed in quick succession. This is especially happening on large scale in the small sector. Although there are several factors responsible for a large scale closure of small units, yet this is largely due to the opportunist and fly-by-night kind of entrepreneurs who diverted the loans obtained from the banks and the other financial institutions to other avocations, instead of concentrating both attention and funds on small scale units

Table 1

Growing incidence of Industrial Sickness, 1980-1991

	December 1980	March 1991	% Growth during 1980-91
Number of Units			
Non-SSI	1,401	2,337	67%
SSI	23,149	221,472	857%
Total	24,550	223,809	812%
Outstanding Claims (in Rs)			
Non-SSI	1,502.89	7,975 78	431%
SSI	305 77	2,792 04	813%
Total	1,808 66	10,767 82	495%

Table 2

Workers affected by Sickness in Small Scale, Large and Medium Sector (Non-SSI)

Sl. No.	States	No. of Sick SSI Units	Total Employment in SSI Sector	Large & Medium Sector Sick Units	Large & Medium Sector Weak Units	Total Employment
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Andhra Pradesh	18,277	168,879	36,110	27,076	232,065
2.	Assam	11,438	105,687	200	1,500	107,387
3	Bihar	14,587	134,784	22,428	8,240	165,452
4	Gujarat	5,421	50,090	128,276	66,942	245,308
5	Haryana	2,212	20,439	20,604	6,426	47,469
6	Karnataka	8,494	78,485	10,176	6,264	94,925
7	Kerala	19,554	171,439	7,520	7,160	186,119
8	Madhya Pradesh	12,407	114,641	15,832	14,222	144,695
9	Maharashtra	15,959	147,461	136,527	108,885	392,873
10	Orissa	9,125	84,315	7,953	18,822	111,090
11	Punjab	2,699	21,939	10,337	4,469	39,745
12	Rajasthan	10,362	95,745	12,456	3,284	111,485
13	Tamil Nadu	31,245	288,704	24,422	10,179	323,305
14	Uttar Pradesh	22,492	207,826	29,100	45,360	282,286
15	West Bengal	22,738	210,099	73,023	51,942	335,064
16	Other	11,439	105,696	15,077	17,281	138,054
	Total	217,439	2,009,229	550,041	398,052	2,957,322
			(67 9%)	(18 6%)	(13 5%)	(100%)

Source Compiled from data provided in Centre for Monitoring Indian Economy (CMIE) Bombay, Volume II, 1991

This view is supported by the RBI's reports also that about two-thirds (66%) of the sickness is due to mismanagement including faulty planning

Locking up of country's limited financial resources, wastage of capital assets, loss of production and decrease in employment and increase in unemployment have been the major repercussions of industrial sickness and industrial closure In the subsequent section II, we concentrate on the magnitude of employment loss due to the closure of sick industries in the country

II

Most of the studies on industrial sickness report sickness as one of the important cause of industrial closures. Individual researches and Government reports undertaken so far mainly speak of the huge amount of outstanding bank credit locked up in a large number of sick units. In fact, no serious and genuine concern has been expressed about the large number of workers facing the problem of unemployment following the closure of sick industries in a labour surplus country like ours. Then, expectedly, no precise number of the workers affected by sickness of industry are available in India. Yes, there are stray researches which tried to estimate the magnitude of workers affected by industrial sickness.

Basing on Swamy's methodology (Swamy 1991), we have also tried to estimate the number of workers affected by industrial sickness The figures used for this purpose have been obtained from CMIE, Volume II (1991)

The following exercise has been made.

(i)On the basis of number of small scale industries (SSI) and employment therein, average employment per SSI unit is calculated which comes to 9 24

(ii)Similarly, the average number of employees affected in per closed non-SSI textile mills is derived from the number of closed non-SSI textile mills and employment therein Here, we also assumed that similar pattern of employment holds good for non-SSI sick and weak units.

(iii)So far as employment affected in sick and weak non-textile non-SSI units is concerned, two points are noteworthy Firstly, the employment data of closed non-textile units consists of workers only whereas it had to be accounted for both staff and managerial (non-worker) employment Secondly, the data relate to the closed units where employment is expectedly smaller than that in operating units for the obvious reasons that while many workers are retrenched during the process of weakness, many other workers leave on account of voluntary retirement scheme and managerial pressure Basing on this, we have assumed that both workers' attrition and the non-worker staff account for 50% each in the total employment of sick and closed non-textile non-SSI units.

(iv)Thus, now by multiplying the number of units in each category by the average employment in the respective category in all the States, we obtained the total number of workers affected by widespread sickness in non-SSI sick and weak units and SSI sick units in the country.

The estimates of employment loss

so arrived at are presented in Table 2.

It is seen from figures in Table 2 that nearly 30 lakh of workers are likely to be affected by the closure of sick and weak units. In relative terms, about 6% of total employment in industrial sector is likely to be affected by industrial sickness. It is interesting to note that out of total 30 lakh workers likely to be affected by closure of sick units, even more than two-thirds (68%) of total will be rendered jobless in small sector alone This means that out of 12 lakh employees working in modern small scale industry, 60% i e 20 lakh employees are to be affected in small scale industry Of the remaining one-third of total 30 lakh workers, about 19% will be rendered jobless in the sick units of the large and medium sector and about 13% are bound to be retrenched in near future in weak units

Here, it seems pertinent to mention that it is not always industrial sickness that leads to the closure of the Units

One can catalogue a number of cases when the managerial dissentions and bad intentions also lead to the closure of the industrial units, thus, rendering the workers jobless. We cite here a few facts and figures of such intentional closure of industrial units *The Empress Mills* in Kanpur owned by Tatas represents one such special case of industrial closure. The management wanted to close down this mill. Therefore, it used various techniques to provoke and instigate the workers to go on strike. The management succeeded in it and the mill was closed down After the mill closed, the workers approached to the Government to take over the mill and safeguard the workers' interest. The Government took over the mill imposing certain conditions. These were (a) 10% wage cut, (b) compulsory retirement at the age of 50 years, and (c) workers recruited in the year 1980 should work as *badlis* This decision went against the interest of workers. *J K. Mills* in Kanpur also tells the same story where family feuds compelled the management to close down the mill The management declared a lockout on 15th May, 1989 The workers were faced to accept certain pre-conditions for lifting the lock-out. The pre-conditions *inter alia* were (a) a retrenchment of 1600 workers out of the present strength of 2,500 workers, (b) Sunday working, and (c) 24 hours working. The main intention of the management behind imposing these conditions was to get the mill closed down, get it declared sick mill and sell land at fabulous price.

Now, it is clear from the foregoing analysis that loss in employment and thereby increase in unemployment has emerged as a result of sick units. Loss of employment of 30 lakh workers is a matter of great concern in a country like ours where employment opportunities already fall far short of available labour force in the country Obviously, the protection of existing employment opportunities of such a large scale which is likely to increase in view of a large number of non-viable sick units, has been a big challenge before the country in its cherished goal of employment for all by 2,000 AD ❐

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of the previous year The PSUs have to raise about Rs 5,000 crore within the next few months to meet their current year's budgetary requirement. In an effort to raise huge resources several PSUs have offered to buy back at par the domestic bonds issued by them The Mahanagar Telephone Nigam Ltd. (MTNL) was the first to offer a buy back option to mutual funds and banks while seeking to place bonds worth Rs 500 crore at 16% interest rate Indian Railway Finance Corporation has also made a Rs. 600 crore bonds offer at 16% interest rate with a buy back option after five years.

The new credit policy gives a clear signal to bankers to take appropriate decisions to meet genuine needs of the industry especially for exports, agriculture and small scale sector. The steps will not only boost productivity but also growth and performance in all sectors of the economy. However, it is a point of great concern whether the banks would be able to channelise credit to the vital sectors and the benefit passed on to the public Banks are now cautious in lending for reasons best known to the industry circles The possibility of turning the lendings as non-performing assets and the consequent provisioning requirements tell upon the profitability of banks The credit risk is high when the advances are allowed liberally and the banks would be saddled with heavy risk weighted assets for which the required capital is to be maintained. The credit expansion of banks is at a lower pace as is evidenced by the increasing investment deposit ratio of banks As on September 17, 1993 the investment deposit ratio of commercial banks stood at 41.29% and in the fortnight ended this date the incremental ratio was a stunning 360 2% in relation to the incremental deposits In the first half of 1993-94, out of the incremental deposits mobilised of Rs 17,513 crore, 71 2% was invested in contrast to 44 4% in the corresponding period of the previous year While addressing the issues of the commercial banks, the monetary authorities should have followed a pragmatic approach taking into account the viability of the system especially in light of the provisioning requirements owing to the new guidelines on income recognition and asset classification ❐

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Oil Shales–An Important Source Of Energy

Dr. Ajai Srivastava

There is an urgent need to step up research on oil shales in view of the unbearable strain on fossil fuels. The author says that investigations have proved that there is a rich source in the north eastern parts and it can be tapped to produce oil over a long period.

THE rapidly growing population base and multiplicity of wants at almost all levels has put an unbearable pressure on fossil fuels. The treasure of fossil fuels is fast depleting Within 200 years of enormous use of energy, the world has realised the need for non-conventional, renewable and alternate sources of energy. At present, the most promising alternatives to conventional petroleum-based fuels are synthetic hydrocarbon, alcohols and hydrogen. A great deal of effort is being put into finding ways of producing conventional hydrocarbon fuels from sources other than mineral oil There are several carbon-bearing natural products that can, in principle, be considered as raw material for this purpose. Oil shales is an important raw material from which synthetic hydrocarbon fuels can be extracted.

Oil shales are stratified, consolidated claystones or marls whose mineral components are bound up with as much as 15% bituminous organic substance, i.e., 'Kerogen' When the oil shale is heated in the absence of air (retorting), the Kerogen breaks down to give shale oil as well as gaseous and coke-like by-products. The composition of the shale oils varies considerably depending on the nature of the shale material and the retorting conditions. In general, the oils are viscous fluids with a high percentage of sometimes unsaturated hydrocarbons in the boiling range of middle and heavy oils, they also contain large amount of organic sulphur, nitrogen and oxygen compounds Catelytic pressure hydrogenation reduces the size of the hydrocarbon molecules, saturates olefinic double bonds and eliminates the sulphur compounds, with hydrogen sulphide, H_2S, being given off The product is a "Synthetic oil" which can be processed using conventional refining techniques

The oil is produced by destructive distillation of the organic matter, i.e., the 'Kerogen'; gas and coke are formed at the same time by thermal treatment. The Kerogen is generally present as fine inclusions in the mineral substance. The quality of oil shale is usually defined by the "oil content" in litres per tonne in conjunction with the calorific value, the one apparantly being a function of the other, with considerable variation, however. The composition of Kerogen and the mineral substance of a typical oil shale is shown in the Table 1, although it can vary greatly from those given

Table 1

Composition of typical oil shale

Substance	% by weight (dry)
Total mineral substance content	86 2
Mineral constituents	
Carbonates	50 0
Feldspar	19 0
Illite	15 0
Quartz	10 0
Analcime, etc	5 0
Pyrite	1 0
Total	100 0
Total organic substance content	13 8
Organic constituents	
Carbon	80 5
Hydrogen	10 3
Nitrogen	2 4
Sulphur	1 0
Oxygen	5 8
Total	100 0

(From Dineen, U and I Cook Am Soc Mech Engr, 1972)

The composition of the mineral substance can vary to a considerable extent. The main constituents are usually limestone, clay and quartz, in differing quantities

Potential

Crude oil and natural gas currently meet a lion's share of the world energy requirements, while their reserves only constitute a slight fraction of the world's energy resource. However, the structure of energy requirements and energy reserves greatly differ The anticipated shortages will have a major effect on economic growth unless this gap is closed either by a new source of energy or one which has not been fully utilized previously. The world reserves of oil shale cannot close the forecasted energy gap. The reserves of shale oil from shale with

an oil content of at least 42 litres per tonne are said to amount to 530 x 10₉m₃, and thus to be considerably larger than the quantity of the crude oil reserves known today. Although only a fraction of these shale oil reserves can be used economically, yet this source of energy which is still largely neglected today, will develop a certain significance in the future Oil shale is already being processed on a commercial scale in the erstwhile Soviet Union and apparently also in the People's Republic of China In China, production of shale oil has gained a certain significance, and apparently a few oil shale power stations are in operation In other countries, deposits of oil are also utilized on a smaller scale. The economic production of shale oil in connection with the development of new, more sophisticated, retorting methods and increasing crude oil prices will be a gradual process.

Method For Utilizing

Oil shale can be processed by retorting with subsequent oil and gas production or by means of direct combustion Oil shale is retorted at material temperature between 350°C and 500°C, while direct combustion is carried out at temperatures above 750°C There are six groups of processing methods

1. Retorting, with solid heat carrier,
2. Retorting, with gaseous heat carrier, internal combustion,
3. Retorting, with gaseous heat carrier, external heating;
4. Retorting, in situ,
5. Chemical extraction;
6. Direct combustion.

According to the present state of the art, oil shales are mined, classified and crushed either in open-cast pits or undergound They are heated to temperatures of 450° to 500°C in an externally fired retort and this results in gases and shale oil vapours being given off at the side while the mineral, coke-containing, spent shale residue emerges at the bottom of the retort The shale oil is condensed in cooler where it is separated from the gases produced by the retorting process The shale oil is mixed with catalysts (iron, molybdenum or tungsten compounds) compressed in compressor and combined with compressed hydrogen. The mixture is heated in the heat exchanger and fed to the pressure reactor. Pressure hydrogenation takes place in the liquid phase at 450°to 500°c and at pressure up to greater than 300 bar, often with several pressure reactors being connected in series Non-distillable asphaltic components of the reaction material are separated out in the hot separator and they are removed in the form of sludge Expansion takes place and the synthetic oil is condensed by cooling in the cooling system The remaining gas mixture-mainly unused hydrogen as well as the lower alkanes, H_2S and NH_3 is purified and the hydrogen is recycled The synthetic oil is distilled thereafter

The technology for processing oil shales which has been outlined above is costly and also poses considerable environmental problems as a result of the accumulation of overburden and the mineral residues from the retorting process So, attempts are being made to develop in-situ processes in which retorting is carried out underground with as little prior mining of the oil shale as possible In this technique, some of the Kerogen is burnt off by supplying air through artificial channels and the rest undergoes destructive distillation as a result of the heat that is generated, the shale oil is drawn to the surface through extraction boreholes However, this technology is still not fully mature

The proven reserves of oil contained in minable deposits of oil shale, i.e, those with a content of 40 to 200 litres of oil per tonne of oil shales, are given as 460 billion tonnes. The main occurrences are in the USA, Brazil, Russia and China. In all these countries work is going ahead on the extraction of synthetic oil.

Local Occurrence

In India, several black shale sections, particularly those associated with limestone, chert and phosphate rock need detailed examination, as these are particularly favourable for holding organic matter A survey of literature reveals that no detailed work on this aspect has been done so far Black shales of Lower Tal Member occur in four datached Tal basins extending over a length of about 177 km. in Sirmur district of Himachal Pradesh and Garhwal, region of U P The association of black shales with chert, limestone, siltstone and phosphate rocks is considered favourable for the presence of Kerogen in these shales

Investigations by Oil India Limited (OIL) have revealed that the Paleogene (Lower Tertiary) rocks of North East India form a very rich oil shale with an oil potential of 14 billion (10^9) tonnes, i.e, a resource capable of sustaining a production of about 140 million tonnes of oil per annum for 100 years These shales are mostly exposed at the surface of the earth and can be mined by open cast methods Oil can be extracted from these rocks by retorting in low temperature carbonization plants Prognosticated resources are much larger by two or three fold Detailed geological and geochemical investigations are needed

Considering the increasing demand and uncertainty of foreign import, it is desirable in the national interest to develop shale oil in India ❒

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Independent South Asian Commission On Poverty Alleviation: Salient Features

THE Heads of State and Government of the SAARC countries appointed the Independent South Asian Commission on Poverty Alleviation at the Colombo SAARC Summit in 1991 The Terms of Reference required the members of the Commission to clearly diagnose what went wrong with past attempts at poverty alleviation, draw the positive lessons from the ground where the poor have been mobilised to contribute to economic growth and human development and, finally, to identify the critical elements in a coherent overall strategy of poverty alleviation in South Asia

The Prime Minister nominated Shri K R Venugopal, Special Secretary in the Prime Minister's Office and Prof S R. Hashim, Principal Adviser in Planning Commission as Commissioners from India The main messages in the Report of the Commission are summarised below

Problem And Setting

Poverty in the Region in the year 1991, based on the conventional "Poverty Line" estimates in most countries, would be between 330 to 440 million It is more likely to be in the higher range

Given the present trends in population and economic growth and in the absence of a concerted effort at poverty alleviation, the numbers are likely to increase substantially.

The problems of poverty are further aggravated by various other social deprivations and discriminations from which the poor suffer as well as by the spatial inaccessibility of outlying, remote and distant terrain which prevent the delivery of social goods and services

The Structural Adjustment policies, which accompany the open-economy-industrialisation strategy currently being adopted by most SAARC countries, are likely to put further strains on the poor, in the shorter term

The Report reinforces the conclusion that the magnitude and complexity of the problem of poverty in South Asia is staggering When coupled with the multifaceted crisis currently facing South Asian countries, the problem is becoming unmanageable, not only putting democracy at risk but also posing a threat to the fabric of South Asian societies

Inadequacy Of Past Development Interventions

The conventional development interventions over the past fifty years, has resulted in a growth rate too low to have an impact on the levels of living and human development of the large number of poor Though South Asia has achieved an average growth rate of 3 1 per cent over the past ten years, while several other regions in the South have had negative growth, such growth has failed to "trickle down" or be administratively redistributed to the poor, except in a limited manner The magnitude of poverty remains unacceptably high.

Excessive dependence on the State for every lead in development curtailed initiatives of the people Obsessive preoccupation with capital accumulation, as the driving force in economic progress, resulted in neglecting the capacity of the poor themselves. Concentration on industrialisation/modernisation, as the dominant paradigm of development, created dualities in the system and wide gaps between rural and urban levels of living as well as further polarization within these areas The poor, wherever they lived, faced the worst consequences of these processes

In making an overall assessment of the results of the adaptations made to conventional development wisdom by South Asian countries, however, there is evidence of a positive side, albeit a limited one, as far as the poor are concerned. These limited positive effects are.

(i) Some of the benefits did "trickle down" to the poor in areas where there was a systematic emphasis on agricultural development and food production,

(ii) In a few South Asian countries, or States within countries, where there was consistent investment in social development programmes, a significant level of human development was achieved, even by the

poor, at low levels of income; and

(iii) Where massive financial resources were available and the bureaucracy was committed and efficient, poverty was ameliorated through the "delivery of inputs" to the poor in selected sectors and areas.

In the past three to four years, all the countries in South Asia have been tentatively attempting to adapt overall development plans to ensure that social polarisation and poverty reproduction are not exacerbated, as their economies are liberalised and adjusted in pursuit of the Open-Economy Industrialisation Strategy. Some are attempting to further decentralise the process of development decision-making, some are placing greater emphasis on social development, and still others are attempting to further increase the delivery of inputs to the poor more efficiently, streamline the administrative redistribution machinery and food systems and introduce safety nets A few have recently begun to initiate bolder new programmes of social mobilisation, which fall broadly within a new pattern of development, that enable the poor to contribute to growth and human development and also assert the right to resources intended for them

However, mere continuation of the conventional development pattern with marginal variations, efficiency in achieving these limited gains and ad hoc consultation with the poor in the name of participation would not be adequate to reverse the process of poverty reproduction. The sheer magnitude and complexity of the task should not be underestimated The eradication of poverty in South Asia would require a major political approach in which social mobilisation of the poor plays a critical note. A mere technocratic approach is inadequate

Learning From The Ground

In the past ten to fifteen years, a sufficient body of new experience has matured at the micro-level in the South-Asian countries, which demonstrates that where the poor participate as subjects and not as objects of the development process, it is possible to generate growth, human development and equity, not as mutually exclusive trade-offs but as complementary elements in the same process An in-depth analysis made of the hundreds of participatory processes on the ground confirm that the poor have contributed to growth and human development simultaneously under varying socio-political circumstances. They also demonstrate that, at relatively lower levels of income, it is possible for the poor to achieve a high level of human development These experiences provide a material basis for the assertion that a qualitatively and quantitatively significant new element can be added to the strategic options for poverty eradication in South Asia. The few success cases that have been presented in the Report are merely illustrative of how poverty is being alleviated, savings and investment are being increased, assets are being created cost effectively There are thousands of these in various stages of maturation in South Asia. There is also evidence that where this process is supported sensitively with adequate resources and mechanisms, the process can be expanded cost effectively

A closer look into the experiences on the ground points to a number of common and specific lessons on what has been achieved through social mobilisation and participation of the poor in development The lessons and achievements include the following

- Building organisations of the poor is an essential prerequisite for poverty alleviation Through these organisations, the poor can save and invest efficiently
- Empowerment of the poor is the means to poverty eradication. Through empowerment, the poor can also assert the right to resources intended for them and enhance their dignity and self respect.
- Poor women can effectively overcome their double burden through the same process.
- The need for sensitive support mechanisms to catalyse the process of social mobilisation. A new kind of animator/facilitator who is identified with the poor and committed to poverty eradication need to be a part of these support mechanisms.
- Participatory monitoring and evaluation have to be built into the process so that self-corrective action can take place as the process evolves.

The experiences indicate the need to consciously expand existing organisations of the poor and create new institutions through which they can participate in development They need their own institutions as well as the support mechanisms because there are serious systemic obstacles to their becoming the mainstream How this can be done is now clearer The Report elaborates in detail on "How" the poor have contributed to growth, human development and equity in the same process In this process of social mobilisation organisations of the poor and new kinds of sensitive support mechanisms would implement the strategic options The sensitive support mechanisms would implement the strategic options The sensitive support mechanisms could be varied, e g non-governmental organisations, banks for the poor, cooperatives and even decentralised government agencies working with new norms. The State would provide the enabling policy framework, resources and devolve power to the poor

A Pro-Poor Perspective And New Premises For Action

The inadequacy of the past development response, the limited positive results at the macro level and the lessons from the ground have been combined to provide the new premises for action for a strategy of poverty alleviation.

The Perspective which should inform these new premises for action should be unambiguously pro-poor and culturally relevant. The new premises for action is a pattern of development which initially moves on two fronts:

(a) The open-economy industrialisation front

(b) The poverty alleviation front.

These two parallel strategic thrusts, having longer and shorter term time frame can be harmonised as the two processes evolve.

The Report has concentrated on articulating the elements that should inform the Poverty Alleviation front They are:

- Poverty can be eradicated in South Asia by the year 2002, i e. within a ten-ear time frame, leaving only a residual number of poor who would need social welfare programmes This latter category can be kept within manageable limits and be carried by society until they, too, can become part of the mainstream of development in wider human terms

- This would involve a doubling of GDP per capita during this ten-year plan from the current US$ 600 per capita (given a projected population growth rate of 1.8 per cent) This means a GDP growth rate of 9 per cent per annum for the Region This growth rate of 9 per cent is an ambitious target, but achievable It can build upon the growth rate of 3.1 per cent in the 1980s, which was achieved under very adverse conditions Each SAARC country can phase its indicative planning targets according to its own potential

- Such an increase will have to be produced by a different pattern of development which requires an explicit political commitment of the leadership and the participation of the poor in development Such political commitment would have to focus on the two conventional targets of growth policy· lowering the incremental capital-output ratio from 4.1 to 3:1 or less, and increasing the marginal saving rates from the current levels to 27 per cent or more. Such a large shift would also require the involvement and participation of the poor through their own institutions and mobilisation of their own savings and that of the non-poor Lowering of the capital output ratio would involve a growth strategy based on labour intensive development, with high productivity and human development.

A key element of the strategy has to be to mobilise the savings of the poor themselves as a first step. South Asian countries have little choice but to use labour, the factor in surplus. The investment activity of the poor is effected mainly not in the form of monetary instruments, but as asset creation by transforming labour into capital Combined with proper organisation, it can help unleash new forces leading to efficient asset creation. The "sharing and caring" characteristics of the poor in South Asia and the values of "simplicity and frugality" too can reinforce such an effort. Thus, in addition to the conventional accumulation process by the State and the private sector, there is a compulsion for a new accumulation process.

Lastly, this process must include a net transfer of resources to the poor Apart from increasing their savings and having access to capital, such a resource transfer can also take the form of improving the social and physical infrastructure for the poor, once again through their own participation. All this requires a major effort at social mobilisation leading to the release of the creative energies of the poor and building of their organisations

- Most of the poor in South Asia live in rural areas and depend directly or indirectly on agriculture; food security is an important component, not only of survival but also of the basic dignity and well-being of the poor Thus a foremost element of the development pattern is to give a new priority to agriculture with emphasis on food production and a food security programme The State needs to make an explicit political guarantee of the right of the poor to food security

- The designing of a strategy for small-scale, labour-intensive industrialisation for which South Asia has a comparative advantage, forms a third element. This strategy would absorb the unemployed and underemployed poor, including youth, into productive activities Labour-intensive industrialisation is a function of the product mix, technology choice, scale of activity, plant size and supporting institutions

- An essential pre-requisite of the poverty eradication strategy is human development, which guarantees the right of the poor to participate in decisions that affect their lives, the right to food as a basic human right, the right to work and the right to all information services Literacy, primary education, health, shelter and protection of children have also been included in this list of priorities. Defining and promoting the role and status of women in society and ensuring the full participation of all strata and groups in development decision making is necessary to make human development holistic. The ultimate objective of economic growth is to bring a higher level of human development within the reach of the poor and thus to expand the range of their choices. In this way development itself is made more participatory and equitable, where growth and human development need not be trade offs

- Although, initially, such a pro-poor strategy can be designed and implemented independently of the longer-term open-economy industrialisation and the associated programme of structural adjustment–adopted by most countries, eventually the two strands of the overall development pattern would have to be harmonised with each other. Since they have different time frames, this harmonisation could take place as the two processes unfold South Asian regional cooperation to create a one billion strong market and a South Asian commu-

(contd. on page 23)

Participatory Approach And Social Change In Command Area Development Programme

M. Murugesan, S. Parvathi and C. Sekar

IT was decided to introduce farmers participatory approach in the command area by motivating them for group action and involve them in the programme in 1987-88. After four years, a study was conducted to find out the changes after the introduction of the concept of farmers participatory approach. An attempt is made in this paper to discuss the social changes brought out in the post-participatory situation.

Though sizeable investments have been made in irrigation projects since Independence, actual utilization has not kept pace with the potential created The gap between irrigation potential and irrigation utilization was a matter of concern for the Irrigation Commission Committee (1972) of Ministers appointed by the Ministry of Irrigation and Power (1973) and the Ministry of Planning (1973). The Committee of Ministers in its report in June, 1973 suggested fuller use of the created potential by provision of water courses/field channels, land levelling and shaping, conjunctive use of surface and ground water, arrangements for input supply and credit, provision of infrastructural facilities and training and extension. The collective concern for the poor performance of major and medium surface irrigation projects took shape in the concept and creation of the Command Area Development Programme.

In Tamil Nadu, the CADP was launched in Cauvery, Lower Bhavani, Sathanur Reservoir Project, Parambikulam Aliyar Project and Periyar-Vaigai Project from 1982 The main activities of the programme are farm development works and implementation of *Warabandhi* During the period of implementation of the Command Area Development Programme,the implementation strategy has not remained the same but varied to suit the changing global outlook and research experience So the tool of farmers participation in irrigation water management in Tamil Nadu, where the CADP is in operation. Though much stress is laid on all the river valley projects, substantial and meaningful attempt has been made only in the Lower Bhavani Project.

Farmers participation has been identified as an essentiel requirement or a means to achieving optimisation in the use of water and maximisation of production. Till 1987, an effective method of farmers participation had not been identified. Various models have been tried, but they failed to deliver the basic requirement of an effective organisation to take over the functions of water management and system maintenance in the command areas In Tamil Nadu, an institution existed in the past for managing small irrigation projects, but these disappeared slowly when social changes took place,particulary after Independence The farming community also ignored its commitment to maintain the assets created under the irrigation programme In course of time total dependence by the community on the Government has come to stay and this has made it impossible for the Government to take over operation and maintenance of these systems efficiently The result is gradual dwindling of water in the command area

Various attempts are made in the irrigation command area approved by Government of India under CADP farmers association. But they have not been very successful. It had led to the thinking whether any change in strategy is necessary for reorienting the process of organising farmers participation.

During this period, success stories on farmers participation have been flowing from the Philippines and Sri Lanka Of this, the National Irrigation

Administration's (NIA) experience in the Philippines have been watched with interest for and found to be of special attraction because of its similarity to Indian conditions. Specifically, their endeavour to create farmers associations with defined hierarchy and the catalyst workers employed to motivate and organise the farmers have been well received for its replication.

The Agricultural Engineering Department of Tamil Nadu took the cue from NIA project in the Lower Bhavani Project.

A Pilot Study

The concept of farmers, participatory approach was introduced in Lower Bhavani Project during the year 1987-88 The Thindal Distributory has been selected for taking up the pilot study To mobilise the farmers in Lower Bhavani Project, it was decided to appoint technically qualified diploma holders, called Irrigation Community Organizers This apporach yielded excellent results and the farming community of the selected distributory reacted very favourably for involving themselves totally in irrigation water management After the process of motivation and integration, the base level unit of "Farmers Association" has been formed in the selected sluices The farmers association carried out on farm development works with full interest and enthusiasm The farmers agreed on farm development works as suggested by the engineers. Quality work has been noticed in the field A number of social changes have been witnessed after the introduction of participatory approach Based on the experiences gained at this Thindal Distributory, an institutional structure of farmers organisation for the entire Lower Bhavani Project has been suggested

The following hierarchy of institutional structure has been suggested.

Apex Council (at the project level)
Farmers Councils (at the distributory level)
Farmers Associations (at the sluice level)

Based on the experience gained from the pilot study, the process of organising farmers associations and farmers councils are in progress from 1987-89. Everyone has witnessed and accepted the success of this approach in LBP Command Area Development Programme.

Change

Conflicts on irrigation were reduced after the introduction of participatory approach. Conflicts usually occur because of the misunderstanding The head reach farmers normally take more water and leave insufficient quantity to the tail enders This is one of the changes that was identified through the study

The farmers can represent their grievances to the Government officials without hesitation after the introduction of participatory approach The usual problems arising out of unauthorised drawal of water by breaking locks and shutters and syphoning of excess water were firmly dealt with by association These illegal activities were considerably reduced and in some places completely stopped because of the social control through the farmers participation

After the introduction of participatory approach the farmers know more about the irrigation requirement and water measurement etc through the catalysing agent and the Irrigation Community Organizers As Kallur (1988) pointed out that in irrigated tracts farmers are to be guided at each and every step and in all operations They need guidance to the use of water to their fields in a scientific and economic way This change has been noticed in the command areas and the farmers enriched their knowledge in irrigation aspects very well.

After the formation of farmers association the execution of works are entrusted to the association, thus eliminating the contract system. By this, the members of the association have power, responsibility and sense of ownership on the assets created Farmers expressed that the quality of work executed by the association is better than those of the contractors.

In addition to the employment opportunities generated at farm level, it leads to enhanced employment opportunities in activities whose linkages with agricultural sector are high. The activities like rice milling, repairing or maintenance activities of improved agricultural implements and other agro-based activities which have forward linkages with agricultural sector, generate additional employment opportunities.

The participatory approach brings a substantial change in the attitude of the farmers This would manifest both in their farm activities and personal life. In the sphere of farming it makes farmers cost conscious As they are exposed to the outside world they would be less rigid in the matter of caste.

In Command Area Development Programme, due to farmers participation considerable changes were noticed.

Therefore, a policy of involving the beneficiaries at all stages, i.e., planning, implementation and execution of the programmes could be thought of for expecting substantial changes in their socio-economic condition of the beneficiaries ❐

Correction

The name of the author of the article "Tourism in Uttaranchal: Prospects And Problems" which appeared in October 31, 1993 issue is Ritu Gulati.

Biofertiliser: A Vast Potential

Dr. T. Singh & Dr. P. Bhattacharya

FERTILISER is one of the key inputs in Indian Agriculture. It played a pivotal role in achieving green revolution But, owing to escalating cost of different inputs and non-availability of raw materials, the fertiliser industry is now passing through acute crisis and the availability of chemical fertiliser is quite uncertain

The crisis in chemical fertiliser was strongly felt in the mid seventies Because of high cost of production, subsidy burden and depletion of soil fertility, it was considered necessary to search for an alternative renewable source of nutrient supply to the crops. In 1977, Ministry of Agricultural, Government of India in collaboration with Food and Agricultural Organisation (FAO), Rome and Fertiliser Association of India (FAI) organised one seminar on the development of the complementary use of Mineral Fertiliser and organic materials in India In this seminar, it was stressed to make balanced use of chemical fertiliser, organic manure and biofertiliser

Infact, micro-organisms have been simultaneously a boon and bane to mankind through history. It has been established that a number of microorganisms are beneficial for agriculture It can fix atmospheric nitrogen, solubilise insoluble phosphate, produce growth promoting substances like vitamins and hormones and also play considerable role in decomposition of organic materials and enrichment of compost. The knowledge of this microbial world has given the concept of biofertiliser which is the preparation of living cells of micro-organisms which when inoculated into the soil provide essential nutrients to plants by their effectiveness *Rhizobium, Blue Green Algae, Azotobacter, Azosphirillum* are a few examples of *Nitrogen* biofertiliser where *Bacillus megatherium var phosphaticum, Aspergillus awamori, Penicillum digitatum* are examples of phosphate solubilisers.

Considering the importance of biofertiliser, Ministry of Agriculture, Govt of India launched national project on development and use of biofertiliser in March, 1993, with the following objectives:

1) To produce, distribute and promote use of effective strains of *Rhizobium, Azotobacter, Azospirillum, Blue Green Algae* and phosphate solubilisers.
2) To organise field demonstrations and training programmes on effective use of biofertilisers
3) To create an agency for quality control of biofertilisers
4) To provide technical and financial support to industries/institutions other than Govt. agencies who are engaged in production/distribution of biofertilisers
5) To encourage Research and Development activities
6) To act as nodal agency

New Centres

Under this project, National Biofertiliser Development Centre has been established at Ghaziabad alongwith six regional centres one each at Bangalore (Karnataka), Bhubaneswar (Orissa), Hisar (Haryana), Imphal (Manipur), Jabalpur (M.P.) & Nagpur (Maharashtra) Sixty BGA sub-centres were also established during VI and VII Five Year Plans with the total production capacity of 600 tonnes of BGA (@ 10 tonnes per centre). Initially, during the last two years of VI Five Year Plan (1983-84, 1984-85), the scheme was initiated as Central Sector Scheme with a total outlay of Rs. 2 82 crore. During this period, 40 BGA sub-centres were established and 100 tonne of BGA was produced. During the VII Plan (1985-1990), another 20 BGA sub-centres were set up and 150 tonne BGA produced Besides, a National and 4 Regional centres were also established during this period. The pilot production of *Rhizobium* under the project was initiated in 1990 During 1990-91, two other regional centres located at Imphal and Nagpur were made functional. Further, financial assistance of Rs. 13.0 lakh was provided to 8 Institutional Agencies for *Rhizobium* production.

On October 9 and 10, 1985, India held its first National Seminar on Development and use of biofertilisers at Vigyan Bhavan, New Delhi. The seminar was organised by Ministry of Agriculture, Government of India, and the objectives were as follows:

i) To create awareness at the National level of the value biofertilisers as a

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Fighting Ozone Depletion

INDIA has prepared a Rs. 6,000 crore programme to phase out the Ozone Depleting Substances The Indian proposal will be considered for funding by the Bureau of Parties to the Protocol at its meeting in Bangkok, in November.

India became a party to the Montreal Protocol on Substances that Deplete the Ozone Layer a year ago, on September 17, 1992 Since its calculated level of consumption of the controlled Substances is less than 0.3 kg, per capita (which is the qualifying limit) India qualifies for financial and technical assistance, including transfer of technologies, through the Financial Mechanism of the Protocol.

India's per capita level of consumption of Ozone Depleting Substances (ODS) is at present less than 10 gms. and not likely to cross 20 gms, between 1995-97, as against 300 gms permitted under the Protocol India, unique among developing countries, is self sufficient in the production of Choloroflourocarbons, (CFC) and is expected to become self sufficient in the production of Halons

Even before India signed the Protocol, a Task Force was constituted which drafted the National Strategy for phasing out of ODS A series of sector-wise workshops were then held and a National Programme was compiled in the First Country Programme Workshop held during July, 1993 The Draft National Programme was again reviewed and finally adopted in the Second Country Programme Workshop held in August, 1993. Various Government Departments, Private Industries, experts both from the country and UNDP/World Bank worked together to draft the Country Programme. The Country Programme was then cleared by the Steering Committee and the Inter Ministerial Group

There are five CFC producers in the country with a production capacity of 30,000 tonnes per year and all are 'swing' plants capable of producing both CFC-11/12 and HCFC-22, 15,000 tonnes of CFC are also imported There is one plant manufacturing Halons and MCF but there are 200 fire equipment manufacturers in the country

In addition to over 200 identified Aerosol fillers, there are many tiny units Over 300 medium sized enterprises manufacture foamed plastic There are four major polyol system manufacturers

There are about 14 major applications in the Refrigeration and Airconditioning sectors which use ODS including a sizeable portion in the unorganised sector.

India produces and uses 7 of the 20 substances controlled under the amended protocol, e g CFC-11, CFC-12, CFC-113, Halon-1211, Halon-1301, Carbon Tetracholoride (CTC), and Methyl Chloroform (MCF)

All Ozone Depleting Substances (ODS) are not equally harmful to the environment, and therefore it is necessary to look at the "weighted harmfulness" by calculating the Ozone Depleting Potential (ODP)

CTC is the Substance of widest use, accounting for 39 per cent of the total ODS consumption, followed by CFC-12 accounting for 28 per cent. In ODP terms, CTC accounts for the largest share of consumption (33 per cent) followed by CFC-12 (22 per cent,) Halon-1301 (15 per cent), CFC-11 (14 per cent) and Halon-1211 (13 per cent), CFC-113 and MCF have very small consumption shares

Major User

Looking at it sector-wise, in ODS a terms, solvents was the major user sector accounting for 48 per cent, followed by R&AC Sector (20 per cent), Foams (15 per cent), Aerosols (10 per cent) and Fire Extinguishers (7 per cent) In ODP terms, solvents was again the largest user sector accounting for 37 per cent of the total ODP use. This was followed by Fire Extinguishers (28 per cent), R&AC (15 per cent), Foams (12 per cent) and Aerosols (8 per cent).

India being a fast developing country, the unconstrained demand scenario till the year 2010 has been predicted on varying growth rates (25 per cent to 10 per cent), depending on sectors. The actual ODS consumption in the year 1991 was a little over 10,000 m.t. The demand in 2010 is estimated at 1,84,000 m t In ODP terms, it is 13,000 m.t. at present and 2,00,000 m.t projected for the year 2010

To achieve the objective of phase-out of ODS a mix of instruments in the form of voluntary agreements, legislations and regulations, fiscal incentives, educational programmes and information campaigns is proposed to be used.

Domestic production will be encouraged. Efforts will be made to maintain self-sufficiency in respect of substitutes and minimise economic disloca-

on. Drop-in substitutes will be deveI-ped and conservation and recycling rojects formulated to off-set the cost to e consumer. Programmes will be initi-ed to ensure that the small and tiny terprises are fully compensated. Insti-tions will be strengthened.

The major technical concerns are.

Minimise economic dislocation,

Maximise indigenous production,

Preference to one-time replacement;

Decentralised management,

Development of Standards and Certificate System,

Minimise obsolescence costs.

ubstitutes

Both currently known alternatives d substitutes for various applications ve been identified. Indigenous pro-ction will be encouraged and wher-er possible HCFC 22 will be used nts for the manufacture of HFC-134 HCFC-142 B, HCFC-141 B, HCFC-3 and Hydrocarbon Aerosol Propel-its will be established. In case of CTC plication in chlorinated rubber, since substitutes are available 'zero emis-n' will be encouraged Production of IC power as a substitute will be estab-ed.

About two thirds of the CFC use is the small scale and informal sector. ghty per cent of the Room conditioners, 90 per cent of the Aero-sector, 100 per cent of the refriger-d cabinets and Ice candy machines in the small scale sector, including lon equipment It is estimated that t project cost for small scale tchover will be 2.5 times that of the ge and medium industry The data e for this sector needs to be estab-ed and maintained which requires an ensive survey It is proposed to estab-a core group in the office of Devel-ment Commissioner, SSI to coordi-e this exercise.

Though required to begin phase-out e year 1997, India has already begun marginal way in some sectors. By the year 2010, phase out will be completed for the identified substances.

The Country Programme is contigent upon assistance for funding the component of incremental costs including for transfer of technology, from the Multilateral Fund of the Protocol. The Country Programme is a dynamic document and will be updated in the light of the availability of substitutes and related technologies as well as review of transfer of technology and provision of adequate funding to meet incremental costs.

The Programme indicates for each sector the indicative categories of projects which have been considered, with the assumption that each identified medium to larger sized unit would constitute an individual project. Small projects would be aggregated into larger umbrella projects coordinated by the Development Commissioner for Small Scale Industry. The first update of the Country Programme in 1995 would utilise the results of completed, detailed surveys of ODS usage in the large to medium size, small scale and informal sector and will finalise an overall data base from which a detailed schedule of projects for submission would be developed. ❐

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ii) To assess the potential and prospects of biofertilisers in the country.

iii) To develop a National strategy for promotion, marketing and quality control of biofertilisers

In this seminar, various aspects of production, quality control, storage and marketing were discussed Emphasis was also laid on the basic problems related to research and development of nitrogen biofertilisers and the difficulties encountered in creating interest in the use of these fertilisers at farmers' level It is proposed to hold the next National Seminar in Madras in collaboration with that State

The National project has got sufficient momentum through different programmes Already 346 tonne biofertilisers have been produced and 307 tonne distributed, where Rs 47 0 lakh has been deposited as government sale proceed against distribution. For publicity, adequate action plan has been taken at all stages of execution in order to dovetail the project at farmers level In this regard, the project has already completed 90 field demonstration, 70 extension workers training, 12 orientation courses and 15 farmers training. Technical literatures have been published in all leading languages of India and more than 66 00 pamphlets distributed to create wider awareness Mass media like TV & Radio are also in use Financial assistance has been provided to 18 different production units in India and the quality of about 600 culture packets have been tested

For strengthening of this project, UNDP has also sanctioned $7,72,000 for the development of biofertiliser since 1990. Study tour, training, sophisticated equipment, consultancy (National/International) are some of the components of this project

For feeding more than 1 billion people by 2000AD, there is need to produce 240 million tonne foodgrain for which 24 million tonne fertiliser will be needed and it is a critical task In order to lessen the dependence on chemical fertiliser, the Ministry of Agriculture has already proposed Mission Mode project on Biofertiliser.

If this mission made project gets shape, there will be massive demand of biofertiliser in farming community The Government has put forth vigorous and innovative efforts to bring about all round improvement in this project ❐

The authors are associated with national & regional biofertiliser development centres

Abolition Of Untouchability And Removal Of Social Disabilities: An Appraisal

Dr. P.S.K. Menon

IN his foreword to the Report, for the years 1989 and 1990, on the measures taken in pursuance of the Protection of Civil Rights Act, 1955 the Union Minister for Welfare states that "Untouchability is a product of the Hindu caste system Due to its ancient origin, the evil has deep roots and has manifested itself in a variety of overt and covert forms" As per the Oxford Dictionary, 'Untouchable' means "that cannot or must not be touched, member of hereditary Hindu group held to defile members of higher caste on contact" During the Constituent Assembly debates on the draft article on abolition of Untouchability, many learned Members pleaded for a precise definition of the word 'untouchability' as it was thought the term as it stood was very vague An honourable Member argued that the word required clarification for it meant different things to different people at different times The President of the Constituent Assembly ruled, before the draft article was adopted, that "I take it that the Union legislature will define the word 'untouchability' so that the courts might prescribe proper punishment" The word 'untouchability' has, however, not been defined in the Untouchability (Offences) Act, 1955, later amended and renamed in 1976, as Protection of Civil Rights Act, 1955.

It cannot be denied that untouchability is a direct outcome of the caste system and that its real meaning is generally well understood A precise definition may indeed be difficult and if laid down may even create more problems than it seeks to solve

Indian history is replete with many benevolent instances of social reformers and religious leaders who tried to eradicate the social evil either by propagating a new religion/sect or laying down a set of principles free from prejudices of "high" and "low" to be followed by their followers The impact of these endeavours, were however, localised and even temporary in many cases

Pre-Constitution Measures

Before Independence, a number of Provinces and Princely States had enacted laws for eradication of social disabilities In many regions of the country, social reform movements for according equality to all classes of citizens had gathered momentum It is significant that during the days of our national struggle for Independence under the leadership of Mahatma Gandhi, the removal of social disabilities was an integral part of the constructive programmes launched to ameliorate the poor and the downtrodden It is a widely acclaimed well-known fact that the Father of the Nation used to always stress the relevance and importance of this issue to build a harmonious Nation. On the eve of Independence, there were 27 Acts enacted by various Provinces and States for removal of social disabilities Among these, the "Temple Entry Proclamation" issued by the Maharaja of Travancore in 1936 deserves special mention. The contents of the proclamation is an essay on statemenship, religious tolerance and wisdom and warrants to be reproduced verbatim It was announced

> "Profoundly convinced of the truth and validity of our religion believing that it is based on divine guidance and on an all comprehending toleration, knowing that in its practice it has, throughout the centuries, adapted itself to the needs of changing times, solicitous that none of our Hindu subject should by reason of birth or caste or community, be denied the consolations and solace of the Hindu faith, we have decided and hereby declare, ordain and command that subject to such rules and conditions as may be laid down and imposed by us for preserving their proper atmosphere and maintaining their rituals

and observances, there should henceforth be no restriction placed on any Hindu by birth or religion on entering or worshipping at the temples controlled by us and our Government"

Constitutional Provisions

The Indian Constitution promises not only political but also social democracy, as explained by Dr. Amedkar in his concluding speech in the Constituent Assembly He said "Political democracy cannot last unless there lies at the base of it social democracy" He answered, "It means a way of life which recognises liberty, equality and fraternity which are not to be treated as separate items in a trinity They form a union of trinity in the sense that to divorce one from the other is to defeat the very purpose of democracy Liberty cannot be divorced from equality, equality cannot be divorced from liberty, nor can liberty and equality, be divorced from fraternity"

Article 17 of the Constitution reads, "Untouchability" is abolished and its practice in any form is forbidden The enforcement of any disability arising out of 'Untouchability' shall be an offence punishable in accordance with law" This is not an isolated provision The Constitutional framework for ensuring social equality has to be viewed in its entirety No doubt, mere guaranteeing of certain rights to the individual citizen would be meaningless unless all inequalities are banished, thus assuring each citizen, equality of status and opportunity for his allround development and also the means for enforcement of the rights guaranteed This object is secured in the Constitution, as commented upon by Durga Das Basu, by making illegal all discriminations by the State between citizen and citizen merely on the grounds of religion, race, caste, sex or place of birth (Art. 15), by throwing open "public places" to all citizens (Art 15(2); by abolishing "Untouchability" (Art 17), by offering equal opportunity in matters relating to unemployment (Art 16), by guaranteeing equality before the law and equal protection of the laws, as justiciable rights (Art. 14).

Untouchability (Offences) Act, 1955: Parliament is empowered to make a law prescribing the punishment for "Untouchability" offences (Art. 35). The Untouchability (Offences) Bill 1954, which was later adopted as the Untouchability (Offences) Act, 1955 was introduced in the Lok Sabha on 15 March 1954. The Bill was referred to a Joint Select Committee in September 1954 Finally the Act was passed by the Parliament on 2 May 1955 and received the assent of the President on 8 May 1955 and the Act came into force with effect from 1 June 1955 The Act declares certain acts as offences, when done on the ground of "untouchability" and prescribes the punishments therefor, e.g (1) refusing admission to any person to public institutions, (2) preventing any person from worshipping in any place of public worship (3) disability of access to any shop, source of water, place of services, etc

The Committee on Untouchability (1965): The Government of India, (the then Department of Social Security) constituted in pursuance of the recommendation made by the Central Advisory Board for Harijan Welfare, a Committee under the Chairmanship of Shri L Elayaperumal, M P on 27 April 1965, to study, *inter-alia*, "the various aspects of untouchability, in particular the working of the Untouchability (Offences) Act 1955, and the restrictions, if any, imposed on the entry of Harijans into public places of worship and to suggest remedial measures" The Committee was required to submit its report within a period of six months i e by the end of October 1965 The Report of this Committee on Untouchability, Economic and Educational Development of the Scheduled Castes, was however, submitted only on 30th January 1969 In other words, it took almost four years for the Committee to submit its report

The observations of Elayaperumal Committee that (a) "we are constrained to point out that during the course of our tours, we came to know that copies of the Act were not even available at many of the district offices and that many Government officials had no knowledge of the provisions of the Act" and (b) "the fact that the said Act is not properly and effectively working is clear from the reports of the Commissioner for Scheduled Castes and Scheduled Tribes and also from the information collected by the Committee" answers adequately the terms of reference of the Committee relating to the working of the Untouchability (Offences) Act 1955.

The Protection Of Civil Rights Act, 1955: Based on the experience gained in the implementation of the Untouchability (Offences) Act, 1955 and the recommendations of Elayaperumal Committee, the Act was exhaustively amended and also renamed in 1976 as the Protection of Civil Rights Act, 1955 This amended Act prescribes punishments for the preaching and practice of "Utouchability", for the enforcement of any disability arising therefrom and for matters connected therewith The scope of the Act was enlarged in 1976, by including under the offence of practising and preaching untouchability, the following

(i) insulting a member of a Scheduled Caste on the ground of untouchability,

(ii) preaching untouchability directly or indirectly,

(iii) justifying untouchability on historical, philosophical or religious grounds or on the ground of tradition of the caste system

The penal sanction was also enhanced in 1976, by prescribing that (a) in the case of subsequent convictions, the punishment may range from one to two years' imprisonment, (b) a person convicted by the offence of "untouchability" shall be disqualified for election to the Union or a State Legislature.

Working Of The Act

As per Section 15A(4) of the Act, the Central Government is required to place on the table of each House of

Parliament every year, a report on the measures taken by itself and the State Governments to ensure that the rights accruing from the abolition of "untouchability" may be availed of by the concerned persons. Till the end of September 1993, the Government of India has laid eleven reports. Of these, eight were for single calender year, i e. for 1977 to 1980, 1983, 1984, 1985 and 1986; the remaining three reports combined for two years each i.e for 1981 and 1982, 1987 and 1988 and 1989 and 1990 Reports for the years 1991 and 1992 are long overdue. The latest report pertaining to the years 1989 and 1990 states, *inter-alia* that·

(1) Notwithstanding the growing public opinion against untouchability and a determined effort to eradicate it, the problem continues to persist, particularly in the rural areas

(2) The enactment of laws alone will not bring about the desired results For ameliorating the socio-economic conditions of scheduled castes, a new strategy having the three components of (a) Special Component Plan for Scheduled Castes by the States/UTs and the Central Ministries, (b) Special Central Assistance and (c) State Scheduled Castes Development Corporation was involved in Sixth Plan and has continued since then

(3) In 1990, the number of cases registered in many States has gone down considerably, as compared to 1989 The increase in the case of other States, however, shows that untouchability is still practised in many parts of the country There is, therefore, an immediate need for gearing up and strengthening of the existing machinery for effective implementation of the Act.

A statement giving details of cases under Untouchability (Offences) in pursuance of Protection Civil Rights Act, 1955 relating to three years commencing from 1988 is given below It will be observed that there is no significant variation over the years either in the fresh cases registered by the Police or pending at the end of an year awaiting disposal This calls for special scrutiny and initiation of appropriate measures to bring down the occurrence of offences. Another aspect needing attention is gearing up of disposal machinery for it is noticed that unsettled cases are mounting up

The SC/ST (Prevention Of Atrocities) Act, 1989: A related development calls for specific attention In the year 1989, an Act called "The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act 1989" was enacted to prevent the commission of offences of atrocities against the members of the Scheduled Castes and Scheduled Tribes, to provide for Special Courts for the trial of such offences and for the relief and rehabilitation of the victims of such offences and for matters connected therewith or incidental thereto.

What constitute an atrocity has not been defined but the offences are directly or indirectly flowing from the practice of untouchability The inclusion of Scheduled Tribes in this Act deserves special notice In this connection, what Dr C Parvathamma has stated in her book "Scheduled Castes and Tribes–A Socio-Economic Survey" (1984) is relevant She opines that "untouchability generally does not apply to the Scheduled Tribes, who live apart and in isolation. But when they come out of their habitat and develop contact with the people of plains they are equated with the Scheduled Castes and untouchables" With the enactment of these two Acts, the prohibition of untouchability in the Constitution has been given a realistic and effective shape

Critique

The Protection of Civil Rights Act, 1955 and the Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 are the two important legislations to deal with untouchability offences and check commission of crimes on Scheduled Castes and Scheduled Tribes. Fifty-seven special courts for trial of offences under the PCR Act have been set up in eight states. Similarly, for implementation of the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, the State Government and the Union Territory Administrations have specified existing district and sessions courts as special courts for trial of offences under this Act Exclusive special courts have also been set up by some states like Andhra Pradesh and Rajasthan. Monetary relief and rehabilitation assistance continue to be provided to the victims of atrocities Many State Governments operate schemes to encourage inter-caste marriages and legal aid. Programmes have been developed through the media against the evil practice of untouchability The voluntary organisations are financially assisted to propagate against the practice of untouchability Periodic research surveys and awards to Panchayats are some of the other schemes being operated by some states

Inspite of all these, there is still a lot more to do will be clear from what the Eighth Five Year Plan (1992-97) document of the Planning Commission states It is recorded that "untouchability stands abolished by virtue of Article 17 of the Constitution and its practice in any form is punishable But social discrimination against scheduled castes still linger in many parts of the country It is a matter of concern that inspite of legal measures in the form of Protection of Civil Rights Act, 1955 and the Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act 1989, 76,748 cases of atrocities against persons belonging to Scheduled Castes and 17,101 cases of atrocities against Scheduled Tribes were reported between 1986 and 1990. Of these, 3,328 cases were of murder, 5,339 of rape and 4,325 of arson" The document recommends that "In the nineties there has to be an intensification of efforts to bridge the gap in the levels of development of the Scheduled Castes, and other sections of the population so that by the turn of the century these disadvantaged sections of the pop-

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Iodine And Health Care

S. Kulshrestha & R.S. Raghuvanshi

IODINE is an element essential for nutrition. In normal conditions food and water contain enough iodine so as to fulfil the daily requirement. However, in certain environmental conditions like iodine-poor soil, the amount of it in drinking water and food becomes highly deficient resulting in iodine deprivation of populations living in that area Deficiency of iodine in the human body results in decreased production of thyroxine (a hormone secreted by thyroid gland) which leads to Iodine Deficiency Disorders (IDD) like goitre, cretinism, hypothyroidism, myxoedema, increased abortions and infant mortality, etc Iodine deficiency in pregnant mothers leads to serious consequences to the child and it exagerates the deficiency of Vitamin A

In our country during 1989 about 150 million people were exposed to Iodine Deficiency Disorders A survey conducted at the national level indicates that iodine deficiency disorders are present in 182 out of the 208 districts in 25 states Most affected parts include Kashmir, Ladakh, Sub-Himalayan regions of Himachal Pradesh, Shivalik Hills, Northern Uttar Pradesh, Northern Bihar, Sikkim, parts of Assam, Tripura and Manipur Other affected parts are Aravali ranges, neighbourhood of Luni river, Narbada river along Western Ghats, Nilgiri Hills, coastal Kerala, Pune, Delhi and Varanasi

To fight the tragic consequences of environmental Iodine Deficiency Disorders, the government launched the National Goitre Control Programme in 1962 The resource allocation for the Programme has increased 25 folds from a meagre Rs 8 million during VI Five Year Plan to Rs. 200 million in VII Five Year Plan.

Production of iodised salt is one of the main features of the Programme. Production of iodised salt has risen to 700,000 tonnes in 1986-87 from 150,000 tonnes per year up to 1984-85 However, its annual requirement is estimated at 50 lakh tonnes.

At the world level, International Council for Control of Iodine Deficiency Disorders (ICCIDD) has been formed with the objectives of promoting awareness that the IDD can be eradicated at an affordable cost using simple techniques, initiating and supporting the development of national and regional strategies and providing expertise for designing and conducting surveys, training programme, research studies, control programme and evaluations The ICCIDD has established IDD working groups with WHO, UNICEF and other international agencies

Prevention

Iodised salt, oil injections and water iodination are some of the major preventible measures for combating iodine deficiency Iodised oil injection prevents iodine deficiency for a period of 4-5 years, but it requires a lot of disposable syringes and trained workers Iodination of water also requires more investment So, use of iodised salt is the most accepted method of iodine supplementation in India.

Sale of non-iodised or common salt has been banned in India Its sale will be punishable with imprisonment for a period not less than 6 months subject to a maximum period of 3 years and/or a fine of at least Rs. 1000. According to PFA, iodised salt should contain at least 30 ppm iodine at the manufacturer's level and 15 ppm in the distribution channel including retail shops Even today, people do not realise the seriousness of iodine deficiency disorders. They consider goitre as only a cosmetic problem They take non-iodised salt because of lack of awareness.

It is a usal practice that iodised salt is being kept either in containers that are not air-tight or in open packets. This results in iodine loss through leaching Keeping it for a long period also results in loss of iodine The existing conditions of storage, transportation, packaging, handling and distribution of iodised salt in India are not satisfactory and the time gap between iodisation and consumption is considerable

Ways of treatment of goitre is also strange in different communities. Some tribes of Bihar believe that tattoing can prevent goitre Some think that application of tincture iodine on the neck can cure it In medical science, iodine supplementation is given in initial stage for treatment, while in later stages, surgery is the only alternative In areas, where the deficiency of iodine is more prevalent there is generally a dirth of medical facilities

It is high time people are made aware of the importance of iodised salt and iodine deficiency In areas where goitre and other iodine deficiency disorders are widespread, every public health centre should have facilities for the treatment of iodine deficiency Treatment should also be given free as most of the victims are poor

It is a duty of every Indian to spread the light of awareness about iodine deficiency disorders and help fighting against the problem, which is totally preventable and does not require much extra money. ❑

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Need To Increase Cotton Output

T. R. Gurumoorthy

COTTON is one of the major cash crops in India and the textile industry is wholly dependent on it The demand for it is increasing year by year with the expansion of our textile industry. It is expected to touch 150 lakh bales in VIII Plan and it is estimated to reach 160 lakh bales by the turn of this century.

In the year 1988-89, the total supply of cotton in our country was 126 93 lakh bales It included an opening stock of 18 68 lakh bales production of 106 lakh bales and import of 2 25 lakh bales In 1990-91, the production was 120 lakh bales and the supply was 147 79 lakh bales The supply of cotton has increased by 15 per cent during the period between 1988-89 to 1990-91 During the same period, significant increase is recorded in demand The Cotton Advisory Board has estimated the crop for 1992-93 at 130 lakh bales compared to previous year's estimate of 119 lakh bales

In 1990-91, cotton worth Rs 561 05 crore was exported So far, cotton export is decontrolled The Textile Ministry encourages value added export and discourages raw cotton export It has constituted a committee for examining the sample of cotton bales being exported to ensure its quality specification If the international prices are remunerative, cotton agencies will prefer export and it may affect the domestic supply Consequently prices will go up and textile mills will suffer due to non-availability of cotton in right time and in right prices In value added exports, export earnings are higher than the raw cotton export.

The Minimum Support Prices of cotton are fixed by the Textile Ministry on the basis of recommendations of the Commission on Agricultural costs and prices The Government has introduced Intensive Cotton Development Programme for improv ng the production and productivity of all types of cotton and emphasis is given to long staple and extra long staple cotton The total cost under the project for the year 1990-91 was Rs 779 30 lakh shared equally by central and state Governments Intensive Cotton Development Programme is implemented in all cotton growing states viz Punjab, Haryana, Madhya Pradesh, Andhra Pradesh, Karnataka and Tamil Nadu This project covers subsidy on seed distribution, incentive on production of foundation seeds and certified seeds, use of breeder seeds, subsidies on plant protection chemicals and equipment as well as subsidy on use of sprinkler sets and tractor-mounted sprayers

The Cotton Corporation of India procures cotton to meet the requirements of National Textile Corporation and other institutional buyers like Khadi and Village Inustries Commission, State Textile Corporations, etc and to fulfil export quota given by the Government of India In Maharashtra, the Maharashtra State Cooperative Cotton Growers' Marketing Federation procures cotton under its Monopoly Procurement Scheme since 1972-73 During the year 1990-91 season, Cotton Corporation of India procured 10.19 lakh bales and Maharashtra State Cooperative Cotton Growers' Marketing Federation 13 49 lakh bales With the new trends in fashion technology, garments industry and textile industry, the demand for cotton is ever increasing So, adequate measures are necessary to increase production ❒

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nity can further reinforce the harmonisation process

An Agenda For Action: A Plan For The Poor

- Using the Perspective and the Premises for Action as the point of departure, the States in South Asia need to articulate a New clear Vision for the Poor
- The Commission strongly recommends that each SAARC country should prepare immediately, a national level Plan for the Poor using the Pro-Poor Perspective and the Premises for Action identified in this Report The implementation of such a Plan for the Poor in their respective countries should build on the success cases on the ground and other innovative macro processes currently being initiated in all these countries The whole process should be monitored with built in self-corrective measures
- In order to achieve this end, a concrete and practical Agenda for Action by the Governments has been recommended in chapter 4 of the Report.
- Success in the preparing, carrying out and monitoring this Pro-Poor Plan would require a re-affirmation, at the Dhaka Summit, of the underlying assumption in the Report of a deep political and administrative commitment by each of the South Asian Governments to the urgent task of Poverty Eradication within the given time frame. ❒

Khadi And Village Industries And Tribal Development: A Case Study

Dr. Bhagabata Patro

NEXT to Madhya Pradesh, orissa has the second largest tribal population in the country, excluding North-Eastern states According to 1981 census, tribal population constitutes 22.4% of the total state population. The tribal population to total population ratio in Phulbani district is much higher than the state figure which is about 40%. Tribals in this district languish in perpetual poverty eventhough both the Central and State Government have adopted a number of special programmes exclusively for the uplift of tribals in Five Year Plans Resources invested under these programmes have not yielded the desired result in view of inappropriate formulation, half-hearted implementation, exploitative nature of non-tribals and absence of a team of committed workers in these areas

Against this background, the paper intends to examine the dynamics of inadequate development with refrence to the Khadi and Village Industries. It is the objective of the paper to evaluate Whether (i) Khadi and Village Industries can be promoted as a catalyst for economic development and (ii) whether the government programmes have given adequate attention to this aspect. The paper is developed in two sections. Section-I is the analysis of statistical data relating to the district as a whole. The resource base of the economy, plan programmes for tribal development and growth of Khadi and Village Industries between 1979-80 to 1988-89 find place in this section. Section-II is an empirical study conducted in a cluster of village nearer to the G. Udayagiri Town. The purpose is to ascertain the dependence of the tribals on Khadi and Village Industries sector.

Resource Base

The strength of the econmy depends on its resource base The total population of the district according to 1981 census was 7.13 lakh of which 2.8 lakh belong to scheduled Tribes. The district can be broadly divided into two geographical regions, viz, the riverain plains and the hill-cum-forest tracts Due to uneven distribution of rainfall and lack of irrigation facilities, the district is drought-prone frequently The soil quality of the district is below standard and except Boudh Sub-division it is red soil throughout. The land distribution of the district is presented in Table-1.

The table reveals that a major portion of the district is covered by forest and the quantity of land under cultivation is only 22% of the total geographical area. This presents a picture that the district is rich with forest resources. The district comprises three forest divisions The district appears to have abundant quantities of timber, fuelwood, bamboos, drugs, dye staff, vegetable oil and

Table-1
Land Distribution of Phulbani District

Sl.No.	Land use	Quantity in Hectares	Percentage to total geographical area
1	Land under forest	623	56
2	Permanent pastures and other grazing land	37	3
3	Waste Land	37	3
4	Land not available for cultivation	28	2 5
5	Land under miscellaneous crop	57	5
6	Fallow Land	74	7
7	Land under cultivation	248	22
	Total geographical area	1104	

Source: Economic survey, 1990-91, Government of Orissa, Bhubaneswar. (PP.A.16-17)

Table-2
Distribution of Working Population

Sl.No.	Activities	Phulbani 1971	Phulbani 1981	Orissa 1971	Orissa 1981
1	2	3	4	5	6
1	Cultivators	55 16	52 18	49.16	46 94
2	Agricultural Labourers	28 94	29 58	28 28	27 76
3	Workers in house-hold industry	3 63	3 32	3 63	3 30
4	Other workers	12 27	14 12	18 93	22 00

Source: Statistical Abstract of Orissa, 1985, Bureau of Statistics and Economics, Bhubaneswar, p. 29

gum and resin. The quality of manpower is another important factor which deserves consideration The occupational distribution of the district reveals that the district has 39% working population (1981). The distribution of the working population in different activities in the district visa-vis the state is presented in Table-2

It is important to note from the table that between 1971 to 1981 dependence on household industry as an occuption has gone down in the district as well as in the state. The mineral resource of the district has no significant economic importance.

Plan Programmes

The problem of tribal development has been emphasised in different Five Year Plans. Initially, development of village industries was confined to organisation of production-cum-training centres and provision of assistance and advice to village artisans The concept of tribal development blocks surfaced in the third Five Year Plan and the scope was widened in the Fourth Five Year Plan. The Fifth Plan gave birth to the sub-plan startegy. The Tribal sub-plan chalked out detailed programmes and financial outlays exclusively for tribal areas. For administrative purpose, the tribal areas were divided into specified zones and named as ITDPS It is important to note that the first tribal sub plan which was co-terminus with the Fifth Plan has not laid adequate emphasis on the development of Khadi and Village Industries sector. Table-3 reflects the investment pattern in rural industries sector in the district channelled through different government agencies like ITDAS, DRDA, MADA and KKDA.

It is evident from the table that from 1974-75 to 1984-85 expenditure under rural industries programme by the specific tribal development agencies (ITDA, MADA, and KKDA) were only Rs. 9.12 lakh which is 3% of the total. Inclusion of DRDA raises the percentage to 3.5. In contrast to this investment under primary sector was 61% and in the service sector 27 %

The growth of K & VIs sector in the district is presented in table No 4. An

Table-3

Sector-Wise Total Expenditure of Special Agencies of Phulbani District from 1974-75 to 1984-85

(Rs in Lakhs)

Sl. No.	Sectors	ITDA Balliguda	ITDA Phulbani	ITDA G. Udayagiri	KKDA Belghar	MADA Boudh	Total Col. 3 to 7	DRDA Phulbani	Grand Total
1	2.	3	4.	5.	6.	7.	8.	9.	10.
1	Primary Sector	87 46	59 05	26 01	10 82	4 67	187 98 (61 3%)	1898 16	2086 14
2	Secondary Sector	27 97	6 49	0 31	0 95	–	35 72 (11 7%)	75 47	111 19
	Rural Industries	1 80	6 06	0 31	0 95	–	9 12 (2 97%)	75 47	84 59 3 52%
3	Tertiary Sector	48 93	23 59	5 51	2 73	2 03	82 79 (27 0%)	117 42	200.21
	Total	164 36	89 13	31 83	14 50	6 67	306 49	2091 05	2397 54

Source: B Das, 'Development Strategy for the Tribal People in Phulbani, Orissa' unpublished Ph.D. dissertation, pp. 211.

Table-4

Trend of some selected K&VIS in Phulbani District

Sl. No.	Scheme	Total as on 31.3.80	Position of CSS: Total as on 31.3.89	Working as on 31 3.80	Working as on 31.3.89	Production (Value): 1979-80	1988-89	Employment: 1979-80 F.T.	1979-80 P.T.	1988-89 F.T.	1988-89 P.T.
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1	PCPI	23	28	4	8	3,60,042	9,76,000	13	23	68	57
2	Vill Oil	16	– 20	–	–	–	–	–	–	–	–
3	Vill Leather	8	14	3	9	2,08,757	4,64,248	–	(161)	31	310
4	Gur & Khandasari	2	5	–	2	–	18,60,000	–	–	130	–
5	Vill Pottery	9	18	1	9	3,002	9,31,400	–	6	114	179
6	Carp. & Black Smithy	10	17	–	11	–	18,16,400	–	–	144	136
7	Vill Fibre	3	15	2	–	9,358	–	2	18	–	–
8	Cane & Bamboo	4	13	–	6	–	4,80,400	–	–	13	113
9	NEO & Soap	5	9	–	–	–	–	–	–	–	–
10	Lime	5	8	1	–	1,140	–	–	(10)	–	–
11	Khadi	–	18	–	3	–	2,23,846	NA	NA	51	–

Source Annual Report of Orissa K & VIs Board, Bhubaneswar 1979-80 & 1988-89

attempt is made to highlight the decennial growth between 1979-80 to 1988-89. Eleven different items were examined with the help of their production and employment figures The most significant result which emerges out of the table is the status of village oil industry (Ghani Oil) There were 20 cooperative societies registered as on 31.3 89 but none of them were functioning Similarly the number of working village fibre cooperative societies was also nil. This is against 15 units shown to have been established on that date Some improvement is noticed in the functioning of PCPI, village leather, gur and khandasari, village pottery, carpentry and, blacksmithy, cane and bamboo and khadi production units Inspite of this the gap between the number of cooperative societies registered and the number actually working is alarming By the end of March 1989 out of 165 registered cooperative societies, only 48 were reported to be in working condition Production figures for all these industries reveals that gur and khandasari, carpentry and balcksmithy occupy commanding position, whereas the employment figures reflect importance of village pottery, village leather, carpentry and blacksmithy units A comparative analysis of production and employment figures between 1979-80 to 1988-89 reveals remarkable growth of Khadi and Village Industries in the district

This part of the paper presents the findings of an empirical study conducted in a cluster of villages near to the G Udayagiri NAC in Phulbani district The total coverage is 200 households of which 31 households were found to be engaged (full time as well as part-time) in different village industries

Table-5 presents the distribution of families engaged in different village industries A maximum of 11 families were involved in the process of Khadi-making and only 3 families were dependent on blacksmithy trade While conducting the survey all the families have reported that leaf plate making is a part-time business for all of them

Table-5

Distribution of families in different village industries

Sl. No.	Activity	Full-time	Part-time
1	Pottery	–	6
2	Bamboo making	–	7
3	Balcksmithy	–	3
4	Weaving	11	–
5	Carpentry	2	2
6	Procuring Forest Produces	–	190

Source Compiled from primary data

To ascertain the employment potential of different village industries, we have tried to get the employment details of each household. Questions were asked about the number of days an artisan kept himself engaged in his own trade, serves the agricultural sector as an agricultural labourer, goes to forest for collecting forest produce and the number of days he is unable to get any employment

It was noticed that weavers were employed in their own trade for 250 days on an average which is the maximum among all trades Blacksmithy generates only 60 days of employment in the same trade For the rest of the period the artisans were either dependent on other sectors or remain unemployed In carpentry, pottery and bamboo making, the artisan gets employment in his/her own trade for a period of 100, 90 and 75 days respectively. The number of days an artisan remains unemployed is the highest in bamboo making trade followed by pottery, carpentry, blacksmithy and weaving The agriculture sector appears to have generated employment for around 2 months mainly in the khariff season. Diversification of agriculture is non-existent In addition to their normal business, artisans are also dependent on minor forest produce for earning their livelihood Blacksmith artisans are reported to have employment of 100 days on this account.

It is interesting to shed light on the income generation part of the survey.

The results show that weaving, carpentry and blacksmithy generates adequate income which can be termed as above poverty line. (The poverty line is around to be Rs 3600/- per annum per household) In case of pottery and bamboo making it is just at the subsistence level The weaving trade appears to be lucrative among the five, giving roughly Rs 666/- per month The outer income is the highest in the blacksmithy trade

Findings

The dissection of the district economy and the empirical investigation leads us to the following observation which needs attention of the policy makers

(1) Development of Khadi and Village Industries is not in commensurate with the resources available in the district The existing industries encountered during the survey were traditional and more or less demand based Mobility among the occupations are lacking and modernisation has not touched the village industries sector at all

(2) Among the different village industries some amount of satisfactory performance is noticed for handloom industry This is due to demand response for clothes among the tribals There is still more scope to enlarge this industry in the tribal areas.

(3) Performance of village industries undertaken in the cooperative sector is not encouraging This is evident from large scale closure of industrial cooperative societies The Khadi units witnessed during the survey appears to be working well even though there is no cooperative support to them

(4) The district is undoubtedly rich in natural resources and thus has enough potential to support forest-based village industries What is lacking is the entrepreneural ability of the tribal population This requires spread of education, technical training and skill formation among the tribals

(5) It is noticed that overcrowding the traditional industries like blacksmithy, carpentry and bamboo making reduces the full-time absorption capacity of these industries. ❐

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Cochin Port Needs Better Management

Sree Kumar M.

PORTS play a conspicuous role in the development of the economy by facilitating sea-trade There was a chain of good ports on the western and eastern coast of India, even before the era of christ Ports, which are among the key assets of the nation, have been conceived and developed at different points of time to meet the trade requirements of the regions in which they are located The port of Cochin is one such port At present India has 11 major ports and more than 90 per cent of her foreign trade is being handled by these The volume of cargo handled by our major ports is expected to reach 213 million tonnes by 1994-95

Cochin, a natural Port in the South-West coast of India, about 930 km south of Bombay and 320 Km north of Kanyakumari has been prospering since A D 1341 The port received its present glory through the development made by Sir Robert Bristow, the architect of modern Cochin The port has grown today into a major one, next only to Bombay, Calcutta and Madras Receiving almost a thousand vessels of mammoth size every year, the port plays a dominant role in the economic development of the region

Cochin was declared as a major port in 1936 and in 1973 it became the first ever Indian port that witnessed the berthing of a container vessel Since then, third generation ships such as LASH, RO-RO etc have been visiting Cochin

At present, the port allows entry of ships up to 10 6 mts , draft and provides shipping facilities for 15 ships to berth alongside of each other

The Cochin port handles, on an average, only 5% of the total traffic handled at major ports in India The traffic through Cochin increased on an average annual rate of 3 12% from 1981-82 to 1991-92, whereas the growth in the total traffic handled at major ports during the same period showed a 6 02% increase

Though the total traffic through the port is increasing, there has been a decline over the years in the general cargo traffic, mainly due to the stoppage of import of food grains, coal, sugar, cement, etc Otherwise, the volume of general cargo remains more or less stagnant, obviously due to the low level of industrialisation in the hinterland The emergence and rapid development of New Mangalore and Tuticorin as major ports has also contributed towards this decline as certain cargo such as coffee, tea, cashewnuts, coir products, textiles, etc which were traditionally moving through Cochin port are now being diverted to these ports Before the commissioning of the neighbouring ports, Cochin port showed a growth rate of 6 4% Frequent strikes and work stoppages are the other principal causes for this decline

Container Port

The diversion of cargo to other ports could be reduced to a great extent after the containerisation facilities were made available in the port India entered the container era in 1973 when the first ship of the American President Lines, "President Taylor", called at the Cochin port.

Containerisation means that the cargo is being stuffed into containers of specific size and then these containers are put into the ship with the help of cranes, etc The usual size of the containers are 20'x8' and 40'x8'.

The total exports made through the port during 1973 when containerisation facilities were launched, were 8 45 lakh tonnes Of these 4.27 lakh tonnes of cargo were exported to foreign countries and the rest were coastal trade During 1991-92, the total exports through the port were 10.48 lakh tonnes Of these, 4 54 lakh tonnes were to other countries If we look into the growth rate of the coastal exports through the Cochin port during this period, we can see that it is merely 1 48% and the foreign exports show only a very negligible increase

The imports of cargo through Cochin, show a growth rate of 4 58% during the 1973-1992 period The total imports through Cochin in 1992 were 64 33 lakh tonnes The same, in 1973, was 28 75 lakh tonnes The major portion of the import cargo in 1973, from other countries was 26 03 lakh tonnes and the coastal imports constituted only 2 72 lakh tonnes But this changed in 1992 In 1991-92, the major porttion, that is, about 60% of the imports through the port, was from coastal traffic Only 25 66 lakh tonnes of cargo were from abroad So we can find that though coastal imports have a striking growth rate of 15.89%, the foreign imports through the port remain stagnant as those were in 1973

Remedies

But the position of the Cochin port is not at all bad when a comparison of the growth rate is made with other selected major ports having most modern facilities

Under-utilisation or non-utilisation of the facilities is the main reason for the present languishing of the port. Realising the importance and potential of containerisation, the Government of India has taken steps to equip this port. The ports of Bombay, Visakhapatnam, Madras, Cochin and Calcutta are far ahead of other ports because they have modern facilities. However, in the capacity utilisation of the main port equipment, these ports do not show a satisfactory record for the last few years.

The poor growth of traffic through Cochin port is due to various reasons. The slowing down of world trade and the recent developments in the social and political set up of Asian and European countries are two of the causes. The main reason that the port of Cochin cannot attract its potential trade from the hinterland is also due to several other factors such as low labour productivity, low productivity of the existing equipment, etc. The exporters, to a great extent, try to avoid the port and move to other ports The port of Cochin can regain its fame, the time has not passed yet, through proper management of the labour force, a liberal approach to exporters and importers and above all by providing much more facilities such as special equipment, etc.

The potential of Cochin port arising from its unique location and its advantages as one of India's best natural harbours has to be utilised to the full The major development plans for the port which are on the anvil, should be implemented. A rich hinterland with tremendous export potential and the advantages of an export processing zone and shipyard that offers international standards in ship repairs in close proximity to the port give Cochin more opportunities to become a premier port of the maritime world To attain this objective, the government's attention has also to be sought The state government should be actively associated with the port's activities for the batterment and the welfare of the state

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(Contd. from page 21)

Cases under the Protection of Civil Rights Act, 1955

S No	Category	1988	1989	1990
1	Cases brought forward from the previous year	7401	7585	8433
2	Fresh cases registered by the Police during the year	3712	3700	3730
3	Disposed off by the Courts during the year ending in			
	(a) conviction	303	410	128
	(b) acquittal	1402	1463	906
4	Pending at the end of the year	7504	6765	8879

Source Annual Report on the Protection of Civil Rights Act, 1955 for the years 1989 & 1990, Ministry of Welfare, GOI

Note *Some discrepancies in State-wise totals could not be reconciled*

ulation are brought on par with the rest of the society in all spheres of national endeavour"

Recent Developments

Three major measures adopted during the last couple of years having an intimate bearing on the removal of social disabilities have radically altered the scene for the better

First among these, pertains to the amendment of Article 338 of the Constitution replacing the single Special Officer (popularly known as the Commissioner for the Scheduled Castes and the Scheduled Tribes) by a multi-member Commission with wide ranging investigating powers and vastly improved recommendatory authority. This should help in enforcing constitutional safeguards for the protection and promotion of the interests of the Scheduled Castes and the Scheduled Tribes including abolition of "untouchability" in an effective result yielding manner.

The second measure is the Constitutional amendments for establishment of Panchayat Raj institutions and Nagar Palika set up It is recognised that development of the underprivileged will acquire legitimacy, dynamism, equity, pace and resource mobilisation and their efficient utilisation best under a decentralised scenario The proposed local self-government institutions with assured reservation for the Scheduled Castes, the Scheduled Tribes and the women should usher in a new era of harmonious co-existence

The third is with regard to the enactment of the Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993 One of the prime causes for practice of untouchability is manual scavenging, so called unclean occupation. Complete elimination of manual scavenging is one of the objectives of the Eighth Plan for which a National Scheme of Liberation and Rehabilitaion of scavengers and their dependent with an Eighth Plan outlay of Rs. 464 crore has been launched Scavenging can be abolished only when dry latrines do not exist. The legislation will help in achieving the objectives. ❒

Exquisite Embroidered Articles Of Bengal

Smriti Rekha Sarkar

ONCE the bed spread and hangings of Bengal were famous the world over From very beginning Bengal is producing the embroidered articles that is *kanthas* for export to the foreign lands

Traditional *kantha* is made of old discarded plain (mainly white) saris and dhotis plies up according to the required size and thickness. The pieces are sewn together using the small darning stitch in white thread to cover the entire surface. Coloured threads for embroidering the patterns are taken from the coloured borders of saris Designs are taken from the coloured borders of saris. Designs are folk stories, ritualistic motifs, fish reaming animal dancing peacock, elephant, human figure and kalka motifs. Lotus is a very common and important motif. *Kantha* is used as covering the body, wrap the jewellery box, keeping the mallet etc

Now a days rarely is *kantha* embroidery used for making quilts. For commercial purpose and to fulfil the demand of modern generation, the embroidery has swiched its place with high priced silk sari. Bengali women are embroidering silk saris and kurta with exclusive use of tussor silk thread with its golden yellow shade. Coloured threads are also used according to the requirement of motifs. In West Bengal one pure silk sari with *kantha* embroidery costs about Rs 1500-4000 depending upon the embroidery.

Highly decorated one sari takes 2-3 months to complete. In a small village near Canning station of South 24 Parganas in West Bengal "Sundarban Khadi and Village industrial Society" started an organization in a small hut with the help of nine girls in 1978 Now that small hut has flourished into a four storeyed building and thousands of poor women are working in that society and producing the rich and traditional *kantha* embroidered sari and other articles, baluchari sari, Jamdani sari etc.

Bengladesh is rich in textile art and craft. Highly decorated woven saris like– Dhaka cotton, Jamdani and Tangail saris are originally produced in Dhaka and Tangail district

Dhaka is internationally famous for its folk textile embroidery that is *Nakshi Kantha*. *Nakshi Kantha* is not only a fashion, it is a complete life style of the village people. Village life style is drawn on Rajsahi silk with needle point and coloured thread Dhanmandi, a place in Dhaka, is running a non Government project that is "skill development for underprivileged Women" for bringing back the old traditional art of Bengal and helping the poor lady to earn money For this purpose, the skilled women are brought from various corners of Bangladesh. Their craftsmanship and creativity are tested, then the materials to create *Nakshi Kantha* are given to the skilled women Sketching, drawing, tracing or such measurements are not done on the material Free hand embroidery is done on silk with needle and thread, it seems as if the needle is the brush and threads are the colours and silk material is the canvas. Beautiful scenery are drawn on silk with coloured threads Here embroidery helps to show the artistic skill and it is a medium for self expression. Daily household activities of village women, flower, folliage, scenery of their surroundings are stitched on the silk saris and wall pieces

To meet the need of modern people, a little modification has been done in this art 30-100 copies are sewn for one design and sent to different corners of the country and abroad One women is earning approximately Rs 800-1200 per month. Their earning depends on their craftsmanship and per square feet of embroidery work They are getting annual bonus also Market price of one silk wall piece is nearly Rs 1000-1500 and sari is about 2500-5000 The bed cover is for Rs 8000 which is extremely beautiful, highly decorated and having very fine work all over. This type of work takes a lot of patience and time The demand of *Nakshi Kantha* in foreign land is increasing day by day, this way the country is earning a good amount of foreign money also ❒

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Book Review

FACETS OF INDIAN CULTURE; Edited by Kalpana Rajaram and Gayatri Seshadri; Spectrum India; New Delhi 110058; 2nd enlarged edition(1993); Pages: 307; Price: Rs. 65/-

Culture stands for the multi faceted feelings and expressions of a particular human group, photo framed by its history and geography Be it art or science, religion and philosophy, music, dance or drama, its ripples vibrate through the stupas, pillars, architecture, sculpture, painting, language and literature etc. as it grows.

The Indian mind, as it developed under the traditions of 'shruti' and 'smriti' shaped up in a plethora of ways and the book under review provides a composite study of Indian culture along with some vital aspects of cultural transformation in modern India The research-oriented essays in the volume are meant to help the candidates for various competitive examinations as well as general readers, interested to learn about the cultural heritage of India

The book provides wide-ranging information regarding different disciplines of culture, but as it has not been substantiated by a 'Bibliography', a big question mark has been put vis-a-vis its authenticity and correctness It would have been highly appreciated by the candidates as well as the general readers if appropriate original quotations might have been provided to underline and put forth various religious and philosophical terms, concepts, legends and interpretations etc. It could have also provided a chance to correct the facts even at the proof-reading stage (The two Irion Pillars no doubt exist at Mehranti and Dhar, respectively but Dhar of Raja Bhoj is a district town in Madhya Pradesh and not in Rajasthan)

The readers at all levels may particularly like to have a touch of the reference sources in respect of both the great epics and then related legends, festivals etc in the next edition. ❒

Desh Bandhu

TRIBAL DEVELOPMENT PLANS— Implementation And Evaluation: By S.G. Deogaonkar; Concept Publishing Company, New Delhi-110059; (1992), pp. 204; Rs. 240.

During the four decades of planning, a variety of programmes were launched with the objective of improving the socio-economic condition of Scheduled Tribes. These measures have, no doubt, yielded results but not commensurate with the efforts or the needs of the target groups The book under review tries to evaluate the efforts for tribal development in general and the implementation of the Tribal sub-plan schemes in primitive tribal areas in particular in Maharashtra State

The book is based on the study 'Implementation of the Tribal sub-Plan Schemes in the Primitive Tribal Areas of Gadchiroli District of Maharashtra, during the author's tenure as a Post-Doctoral Research Scholar of the Ministry of Welfare during 1985-87 The author has painstakingly toured the inhospitable interior tribal areas and recorded his field observations on implementation of tribal development programmes in a very detailed, manner. The study provides an historical account of the evolution of tribal sub-plan approach and Special Action Plan for backward tribes known as primitive tribal groups The author also discusses tribal culture, tribal administration and the nexus between cultural change and tribal development The book opens with introduction which gives an overview of research work already carried out in the area under study, coverage of the study, and methodology The other eight chapters cover the following aspects The Madia Gond Primitive tribe, the administration for development, implementation of schemes, screening of schemes implemented, attitudes and opinions, suggestions for policy formulation, tribal culture and development and perspective for tribal development

The book contains detailed statistics and bibliography Though the study is restricted to one of the districts of Maharashtra, yet the experience recorded by the author would be helpful in implementing tribal development programmes in remote areas The publication is a welcome addition to the literature on tribal development. ❒

S P Malik

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YOJANA Wishes Its Readers A Happy New Year

Reforming State Finances In India

Sharat Kumar

WHILE the Seventh Plan exploded the myth of the 'Hindu' rate of growth for India at 3 to 3.5 per cent per annum by achieving more than 5 per cent rate of growth, the growth rates in a number of states have been higher than the all-India average. The high growth rates in the individual states is generally closely linked to the performance in agriculture since 'agriculture' is the major sector in most states Maharashtra (21.02), Tamil Nadu (24.64), Gujarat (26 32) and West Bengal (34.23) are however, a category apart since the share of agriculture has been declining much faster and stood at less than thirty five per cent of the total state domestic product in 1985-86.

The growth rate of SDP (State Domestic Product) have, therefore, fluctuated as the monsoons favoured or failed the states. It is, however, true that the growth in other sectors has played its own role in pushing up or pulling down the overall growth rate. It is equally important to recognize that except for Punjab where the share of the agriculture sector in the total SDP grew from 48 per cent in 1967-68 to 51 per cent in 1985-86, its share in SDP in remaining states has been declining over the years Needless to say, this has been so on account of higher growth rates in other sectors.

What pushes this growth rate in any or all of these sectors? Assuming a natural supply of labour it would be said, quite obviously the savings in the society, both private and public. Even superior technology is most often capital intensive, and hence a function of higher savings. In a stagnant society with little growth, smaller family is a blessing since it helps generate higher savings. Conversely , given the life style and a particular standard of living, bigger families would adversely affect private savings. The demographic profile also matters since children consume much less, while teenagers and adults consume much more. This holds good more so in an economy with a small market (i e a village economy) with no significant emigration and immigration and where the same production levels are achieved year after year. During lean seasons people have no useful work to do and remain idle It could be argued, therefore that one of the ways to achieve higher rate of growth in future is through smaller families. The states may, therefore, attach a lot more significance to family planning programmes than done so far. Provision of still better medical facilities at door steps is perhaps the best answer

Higher (aggregate) savings can also be brought about through higher production levels than achieved so far The governments both at the centre and in the states have played an eminent role in this direction with control of floods in different parts of the country (e g the Kosi, Hirakud and DVC projects) and supply of assured irrigation (e g Bhakra Nangal and Nagarjun Sagar projects) etc Higher production in agriculture has thus been made a *fait accompli* This in turn has set in motion cumulative increase in savings which have ensured higher growth rates successively in the years to come. Improvements in agricultural infrastructure were further supported with roads, bridges, market yards, seed and fertilizer depots, better supplies of steel, cement, electricity as well as credit and price support. The states also promoted roadways, education and public health facilities.

These in turn have been the essential features of the Five Year Plans adopted by the different states. The different projects, schemes and programmes thus formed part of the plan and non-plan components of public expenditure of the state budgets Different mixes of this expenditure/plan allocations have been the subject matter of public debate with a view to ensuring best returns of higher rate of growth.

The Problem

The financing of public expenditure which constitutes the subject matter of 'public savings' has generally not got the same attention in India. Perhaps, for reasons of a possible default in payment of committed expenditure, poor maintenance of existing infrastructure, non-payment of salaries to the government employees, the issues involving state finances in preference to Annual Plan have acquired new significance and are being publicly debated

The State Budget which is the mirror of state finances has two components of 'Revenue Account' and 'Capital Account' The Revenue Account (RA), in turn has two book-keeping entries of "receipts" and "expenditures". Any surplus on revenue account is welcome since it can be passed on to the Capital Account (CA) for making capital expenditure which are finally spent to buy machines and build assets or for implementing development programmes The consolidated budgetary position of all the states showed a surplus on the RA during the Sixth Plan It however, deteriorated subsequently during the Seventh Plan and the state budgets have been in deficit on Revenue Account persistently since 1987 (Table 1).

On the Capital Account, likewise there are two entries of receipts and expenditure. In addition to the transfer of "surplus" from RA or Balance from Current Revenue(BCR) there are other sources of augmenting receipts under the head 'Capital Receipts' The major avenues available to the states comprise: loans from the Centre, market loans, provident funds & small savings, other loans (these include funds from the RBI, NCDC, CWC, and LIC etc) and misc. capital receipts. Loans from the centre constituted around 55 per cent of the total capital receipts in 1990-91 Similarly, market loans, small savings & provident funds, and other loans had a claim of around 13 per cent, 10 per cent, and 2 per cent respectively Misc capital receipts constituted 20 per cent of the total. The average rate of interest on loans from the centre has been varying over the years and went up from 4 75 per cent in pre-1979 to 6 75 during 1979-84 to 9 per cent in 1984 Rate of interest today on market loans veers around 12 per cent and those on small savings & provident funds is also 12 per cent. Compared to these any surplus on RA does not involve any payment in future either on accunt of the principal or the rate of interest. Indeed, this is the most economical source of capital receipt. The moot question, therefore, is how to generate this surplus on the Revenue Account. As the Revenue Account on the receipt side comprises 'Tax Revenue' and 'Non-tax Revenue', the above recommendation imply augmenting revenue through both these sources.

Centre-State Relationship

The federal polity of India, as it has evolved over the years, envisages a dual scheme of transfer of financial resources from the centre to the states by way of *'share in central taxes* and statutory grants' and *'Plan Assistance'* While the former is based on the recommendations of the Finance Commission, the latter is based on the modified-Gadgil formula Devolution of funds under both the provisions (by way of grants and tax transfers) thus find a place in the Revenue Account It is important to note that the share of central taxes constituted 20 per cent of the state's total revenue during 1986 to 1992 Similarly, grants (both by way of statutory grants and Plan Assistance) also claimed a share of 20 per cent

Table 1
Consolidated Budgetary Position Surplus(+)/Deficits(-) for All-States

Fiscal Year	Revenue Receipts	Revenue Exp	Revenue Deficits/ Surplus	Capital Surplus/ Deficits	Overall Surplus Deficits
(1)	(2)	(3)	(4)	(5)	(6)
Sixth Plan (Average)	**21,462.6**	**20,854.5**	**+608.0**	**-1,379.6**	**-947.3**
Seventh Plan (Average)	44,553.8	45,884.2	-1,330 4	+1,448 3	+74.3
1986-87	38,226 3	38,056.6	+169.7	-836 4	-666 7
1987-88	42,167.04	43,205 31	-1,038.27	1,350.01	311 74
1988-89	47,767 28	49,591 89	-1,824 61	2,364 38	539 77
1989-90	53,324.07	56,831 25	-3,507.81	3,488.31	-18.87
1990-91	62,753.50	67,860 22	-5,106 72	4,967 85	-138.87
1991-92 (Revised Estimate)	77,191.23	82,495.59	-5,304.36	3,408.66	-1,895.70
1992-93 (Budget Estimate)	85,283.07	90,126.84	-4,843.77	3,149.70	-1,694.07

Source: Indian Public Finance, Economic Division, DEA, Ministry of Finance, GOI, 1992
Note: All state refers to twenty five major states.

It has, therefore, been argued that improvement in R.A. can be brought about if more funds could be transferred from centre to states through larger share in central taxes. Two ways suggested for this have been (a) that the centre should collect more taxes than it has been doing so far, and (b) through including 'corporation taxes' under the divisible pool. The centre may also bring taxes on advertisements on T.V and AIR which are elastic sources of revenues under the divisible pool It could, however, be argued that under the existing levels of tax collection, if items like 'corporation tax' is brought under the divisible pool, it would affect the total availaility of resources with the centre, and the centre would perforce reduce transfer of grants by way of Plan Assistance. In effect, there would be no net gain on RA of states

Collection of more taxes by the centre is indeed the necessary condition for improving the budgetry position of states It is at the same time difficult to deny the allegation that the centre has been neglecting areas of taxation under the divisible pool, *and going alone* through raising resources through 'corporation taxes' and higher administered prices on items like POL and coal etc

The Sarkaria Commission on Centre State Relations (1988) touched upon yet another area of taxation of 'agricultural income' As it is well known this source of revenue is not being tapped in any significant manner either at the state level or by the centre To quote, "Taxation of agricultural income is a sensitive matter Both the Union and the state governments are not inclined at present for a change in the constitutional provision in regard to entry 46 of List II' The recently constituted Chelliah Committee on Tax Reforms (1992) also covered this aspect and recommended that agricultural income in excess of Rs. 25,000 accruing to the non-agriculturists be taxed by aggregating it with non-agricultural income. This would thus not affect those agriculturists who (a) have agricultural income not exceeding Rs. 25,000 per

year, or (b) have non-agricultural income not exceeding Rs. 28,000. The Committee further suggested that the tax proceeds from agricultural component of income should be distributed in their entirety among the states on the basis of origin.

These recommendations are very similar to the ones made by the Committee on Taxation of Agricultural Wealth and Income (Raj Committee) appointed in February 1972. The Committee had particularly suggested the imposition of Agricultural Holding Tax (AHT) by the diffferent states to secure additional revenue from well to do farmers. This was supposed to be more progressive as well than land revenue. In fact, Haryana and Punjab did make a beginning in this direction, but withdrew it in the face of protests from the agricultural lobby A way out suggested has been to impose higher sales tax on agricultural inputs consumed by the more affluent farmers.

State's Own Resources

This brings us to discuss sources of *state's own-tax and non-tax revenues.* Sales tax constitute the most important source of revenue followed by 'state excise duties'. 'stamps & registration fees', 'taxes on vehicles' and 'electricity duty' etc Equally important to analyse is the rate of growth in collection from each of these sources. The growth rates have been fluctuating over the years in most cases, yet, these are consistently positive and strong in case of stamps and registration fees, taxes on vehicles, state excise duty and sales tax There has generally been low and negative growth rates, in the case of 'entertainment tax' and 'land revenue'. Collections from entertainment taxes have dwindled because of the new phenomenon of video-films and televisions

The high growth rate in sales tax accruals also indicate the possibility of further improvement, given the expansion in economic activity. While there is a need to be modest in rates of sales tax, there is a need to discourage 'the rate war' amongst neighbouring states which only push down the sales tax collections. There is moreover a need to simplify the tax structure through elimination of concessions and exemptions on a uniform basis, and broaden the tax base.

Some suggestion towards imposition of a tax on consignment transfers have also been made This would certainly enhance the collection of tax revenue, but it is feared the incidence of this would fall ultimately on inputs which would only raise the prices.

Under the state's own non-tax revenue the most important source of revenue, so far, is 'economic services' which has a share of 40 per cent. The economic services being provided to the consumers is heavily subsidised. There is a need to be ' business like' and raise revenue under this head through introducing upward revision of user charges on electricity and irrigation etc There is no justification in subsidising the middle class, at the peril of state budgets. Similarly, there are all justifications to revise the decades old fees on post primary eduction.

It will have to be ensured, however, that prices are not raised on account of inefficiencies, or to cover rentier income (corruption) in providing these services There is neither any justification to charge higher prices for the sake of sustaining surplus staff

The more important of them all is to improve the profitability of the state public sector undertakings like the State Electricity Boards and the State Road Transport Corporations. In place of giving dividends, these undertakings have become a drain on state finances with recurring losses every year. Part of their problem is the high overhead costs which may perhaps be set right through large scale expansion of these sectors which would further strengthen the infrastructure facilities in the states. Their poor performance is also attributable to lack of modernisation, higher fuel consumption and the like. These could be improved through promoting 'third party involvement' as it has happened in Canada and the industrialised West. Under this system a third (private) party makes the requisite investment and subsequently recovers the costs incurred at a premium over a fixed number of years. It may perhaps be possible to involve multinational companies in this endeavour, and also arrange for loans from the World Bank, especially so for the energy sector.

It appears, however, it would be difficult to do so unless the fixity in prices vis-a-vis electricity charges and water rates are not removed. 'The price charged for electricity consumption for agriculture in 1988-89 was as low as 9 paise unit in Bihar, Maharashtra and Punjab, wheras the operating costs in these states were Rs 1 48, Rs 0.85 Rs 0.91, respectively. Moreover, with the abandoning of the freight equalisation scheme, the cost of coal used in states farther from the coal belt is likely to increase further and unless immediate measures to enhance the price of power is taken, these SEBs will end up with huge losses

Developmental And Non-Developmental Expenditure

It would be most appropriate now to discuss the situation on revenue expenditure The rapid growth of revenue expenditure has outstripped the growth in tax revenue and central transfers 'After the revision of pay scales by the centre in 1986, many of the states too have raised their scales to bring parity What the states have failed to take account of, however, is that while the central scales were revised after 13 years, many of the states have already had three or four revisions during this period'. Moreover, there is now a greater degree of indexation of salaries to price increases. 'There are about 7 lakh employees in the state governments with basic salaries between Rs 2,250 and Rs. 3,500 and the additional expenditure on account of full neutralisation is substantial. Hence, stability of prices at the national level is a great necessity for states (governments), as well.

A useful way to analyse expenditures could be on the basis of development and non-development expenditures-both on Revenue Account and Capital Account. Since the pattern of state financing is very much loan based *the most important component of non-development expenditure has become the interest payments with its lion's share of 42 per cent.* The interest payments has, moreover, been growing at close to 16 per cent per annum.

The loan could be distantly related to the bank deposits of commercial banks pre-empted by the Government of India (GOI) for plan finances by way of SLR and CRR. In other words, this is the household savings transferred to the public sector by the GOI, as part of public debt Unfortunately, the return from these loan based funds in most of the Public Sector Enterprises (PSEs) have been dismal. The failure of public sectors have made many argue in support of initiating measures to promote private sector growth It could, however, be argued that part of the mismanagement in the PSEs has been there also on account of over expenditure due to inexperience And, now when they have acquired 'professionalism' there are recommendations for their privatisation and liquidation! There is no denying, however, that 'the detailed review of enterprises must lead to divesting of the totally unviable units'

There is also a basis for restraining from setting up new corporations and boards by the states to patronise favourites According to one estimate expenditure on this account itself was around Rs 500 crore

The next most important component of non-development expenditure is the expenditure on 'police' which claimed as high as 16 per cent, and is much higher than expenditure on district administration. With the rise in population and the population density, it is high time some of the functions should increasingly be passed on to the local bodies. Indeed this is already in vogue in USA and UK.

Regarding *development expenditure,* the expenditure incurred on *'economic services'* constituted 51 per cent while *'social services'* claimed a share of 49 per cent Under economic services, once again, development of electricity is the major expenditure Power development is highly capital intensive and since the private (corporate) sector in India which had its origin in the 'managing system' did not have either the required expertise and necessary finance, did not do much for the development of this sector The responsibility of developing this important infrastructure, willy nilly, fell upon the state and the 'public sector' And here again, between the central and the state governments, the Second Five Year Plan assigned this responsibility to the states

The character of planning in India has been influenced in a big way by the constitutional provisions of Central List, State List and the Concurrent List Electricity, however, comes under the Concurrent List As such, the development of this sector could have been declared as the responsibility of the centre Subsequently, the distribution of power between states could be made based on a pre-determined formula This may be done even today by reversing the strategy adopted during the Second Plan Consequently, there would be two immediate advantages, namely (a) the states would be redeemed from diverting a large portion of their limited resources towards developing the power sector, and (b) the power sector would also grow faster with more timely and adequate financing by the centre This became quite evident when the centre set up the NTPC during the Sixth Plan. The centre may also explore possibilities of foreign direct investments (FDIs) in this sector through various allurements and concessions.

The state finances are very closely linked with the financial condition of the centre. The failures in the financing pattern of public expenditure have stemmed on account of India being a 'soft state' and not collecting enough revenues by way of taxes, and lower return on investments in PSEs The unsustainability of this financing pattern has shown itself in rising payment of 'interest' which constitutes as large as 42 per cent of revenue expenditure. The states have played an eminent role in country's over all development, and pursued quite an independent strategy Hence, while the centre went for *'industry-first strategy'* during the Second Plan, the states adopted *'agriculture-first strategy'*, and very rightly so! In a way this provides legitimacy to the recommendation of the Administrative Reforms Commission, namely, that the centre may restrict its centrally sponsored schemes to 1/6th of the Plan assistance, this would thus release resources which may be passed on to the states to be spent as per their own priorities. The states in their wisdom may also pass on a good number of their social responsibilities to, 'the third stratum' of Panchayati Raj institutions (PRIs) and local bodies with a view to maximising cost-effectiveness in expenditures. ❑

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Finance Commissions And Centre-State Financial Relations

Dr. G. Thimmaiah

THE Sarkaria Commission which examined the centre-state financial relations in India has rightly identified the financial sphere for detailed examination. Though the Commission made many recommendations in the sphere of centre-state financial relations, they have not found favour with the central government except the creation of Inter-State Council It is hoped that the Tenth Finance Commission will play its due role in ensuring the financial autonomy of the states with a view to strengthening the Indian Union by removing unresolved irritants.

Though the Constitution explicitly provides for a Finance Commission under Article 280, the composition of the Commission has come to be defined under a separate Act of 1951 Of late the central government has started neglecting the composition of the Commission which has rendered the status and influence of the Commission weak in the Indian Union. This is evident from the way the Ninth Finance Commission was constituted without an independent economist Again the Tenth Finance Commission was constituted without an independent economist. Even the Ex-Officio economist member of the Planning Commission ceased to be a member after he joined the Reserve Bank of India and the Commission is functioning without an economist member While one may raise a doubt about the need for an independent economist on the Commission when others are equally conversant with the issues of federal finance, the same argument holds goods for the members with other background as specified in the Act.

In the early years of the Indian federation when the Planning Commission was constituted outside the Constitution, fears were expressed that it may ultimately spell the gradual decline and ultimate demise of the Finance Commission. However, the Planning Commission and Finance Commission came to an understanding about the sphere of their responsibilities, the former concentrating on plan account and the latter confining to non-plan account of the states' financial needs

The National Development Council which was constituted as a true federal organisation to coordinate the policies and programmes of the central and the state governments, wielded considerable influence on the Planning Commission and the state governments. But even this institution has lost its influence over the state governments This is evident from the fact that the state governments who were called upon to approve some modifications in the Gadgil formula disowned the concensus decision of the NDC after the meeting was over The Inter-State Council which has been constituted recently is another organisation without relevant powers Thus almost all institutions which were created after the adoption of the new Constitution both as per the provisions of the Constitution and outside the Constitution to coordinate the policies of the central and state governments have gradually lost their power and influence. It may be mentioned in this context that immediately after the formation of the Australian Federation, two poorer states, Western Australia and Tasmania, experienced unmanageable economic and financial hardship and opted to breakaway from the Federation In order to prevent such disintegration of the Australian federation, the Commonwealth Government appointed a Commonwealth Grants Commission to assess the financial needs of the poorer states and recommend special financial assistance to these states This Australian Grants Commission, (which became the model for the framers of the Indian Constitution for creating a Constitutional Finance Commission under Article 280), was successful in preventing the poorer states from seceding from Federation Today the Australian Grants Commission is looked upon by the states in Australia as an independent quasi-judicial authority which safeguards the interests of all the states with a view to ensuring the welfare of all Australians

The Tenth Finance Commission should strive in this direction. The states are aware of the fact that the Finance Commission is a temporary phenomenon though appointed regularly once in five years They are also aware of the limited scope of the terms of reference in the context of the totality of the federal

financial devolution operating in India. Even so, in view of the far reaching economic liberalisation measures introduced recently the Finance Commission may play the same dominant role in Indian federation as does the Grants Commission in Australia. It is hoped that the Tenth Finance Commission will play the role of an objective federal arbitor in the matters relating to distribution of financial resources between the central and the state governments

Recent Trends

Before I outline the specific ways through which the Finance Commission can play a socially responsible role in the Indian Union, it would be useful to have a bird's eye view of the recent trends in the federal financial transfers in India A cursory look at the budgetary figures will impress us about the growing magnitude of the financial transfers from the central government to the states But this is only in absolute terms If we examine very closely the share of the states in the central resources it does not look so encouraging This is evident from Table 1.

It may be observed that central assistance as per cent of total states' revenues increased by a meagre one per cent from the period of First Plan to the period of Seventh Plan though in between the increase was substantial during the Third and Fourth Plan period The states' own revenues as proportion to their total revenue receipts declined from 62% during the First Plan period to 60% during the Seventh Plan period What is more, the states' own revenues could meet as much as 62% of their total expenditure during the First Plan period But this financial self-reliance declined to 58 5% during the Seventh Plan period This declining financial self-reliance has been due to their increasing share in the total public expenditure much more than their share in the total revenues of the country. This is evident form Table 2

In order to have a more meaningful perception of the growing financial dependency of the state governments as also the nature of this financial dependency, it would be useful to look at the relative shares of the states and the central governments in the total revenues collected by central and state governments in the country. It may be observed form Table 2 that the states received only 29% of the aggregate revenue raised by both the levels of government during the Second Plan period. This trend started improving in favour of the state governments during the Fifth and Sixth Plan periods But during the Seventh Plan period the states' share in the total revenues remained at 35%. In contrast to this, the expenditure responsibilities of the state governments have gone on increasing during the corresponding period necessitating the states shouldering as much as 46% of expenditure responsibility in the country. In other words, out of the remaining 65% of the total revenues collected in the country by the central government, it assumed expenditure responsibility only to the tune of 54% If we examine the expenditure' responsibility on the revenue and capital accounts separately we find the state governments have to shoulder about 50% of the expenditure responsibility on revenue account as against less than 40% share in the revenue receipts and they have to shoulder 41% of the capital expenditure responsibility with only 17% of the capital receipts These relative shares of the states as one government entity and the central government as another in a federal set up bring out the fact that the central government has cornered more revenue receipts than required by its expenditure responsibilities This is reflected in increasing vertical federal financial imbalance as shown in Table 3. It may be observed that the vertical federal financial imbalance on revenue account increased from 33.27% in 1980-81 to 40% in 1991-92. What is noteworthy is the enormous magnitude of vertical federal financial imbalance on capital account which is around 88%. This highlights the concentration of financial powers to mobilise capital funds in the hands of the Central government. However, the magnitude of total vertical

Table:1

Financial Dependence of the State Governments on the Central Government.

Plan Period	Central Assistance as percentage of States' total revenue	States' own revenues as percentage of total revenues of the States	States' own revenues as percentage of total expenditure of the States
First Plan	37.64	62.23	62.02
Second Plan	39.87	59.98	59.75
Third Plan	46.15	54.09	54.37
Three Annual Plans	46.10	53.55	52.14
Fifth Plan	42.06	58.54	59.39
Sixth Plan (1980-1984)	33.88	61.43	65.15
Seventh Plan	39.92	60.07	58.56

Note: Due to adjustments made in R.B.I. Bulletins, Columns (2) and (4) show marginal differences in the precentage share.

federal financial imbalance has come down marginally from 45.42 in 1980-81 to 42.03% in 1991-92. This may be a temporary phenomenon.

Interesting Situation

Looking at from another angle, the states' own revenues both on capital and revenue accounts are sufficient to finance less than 60% of their total expenditure. Central assistance accounted for about 40% of the total revenues to finance the remaining 40% of the state governments' expenditure. There is another interesting situation which deserves our attention The state governments capacity to raise their own revenues seem to have reached a plateau whereas their expenditure needs are increasing faster owing to the increased demand for developmental and welfare benefits consequent on political awakening If the federal financial transfers are made on an objective basis by taking into account the net fiscal needs of the states in the wake of such political awakening and through assured sources, the states may have little apprehension. But if they are discretionary in nature it will result in distrust and conflict

Table: 3

Vertical Federal Financial Imbalance in India

(Percent)

	States own Revenue Receipts/Revenue Expenditure	States own capital Receipts/Total Expenditure	States Total Revenue Receipts/Total Expenditure
1	2	3	4
1980-81	66 73	12 79	54.58
1981-82	67 16	12 10	55 50
1982-83	64 78	11 44	55 32
1983-84	62 65	13 80	56 73
1984-85	59 29	1396	54.80
1985-86	60 54	11 64	51 81
1986-87	60 06	11 79	54 52
1987-88	57 79	11 50	55 04
1988-89	57 48	11 46	55 39
1989-90	58 01	12 30	56 98
1990-91	59 43	12 75	59 18
1991-92	59 93	11 08	57 97

Note: Vertical federal financial imbalance is 100 minus relevant Revenue/Expenditure ratios shown above.

Source: See G. Thimmaiah, *A Critique of the Finance Commission*, Wheeler and Co., Allahabad, 1980.

Table: 2

Percentage share of States in the Total Revenue and Expenditure of the Centre and States

Plan period	Percentage share of States in the total revenues of Centre and States			Percentage share of States in the total expenditure of the Centre and States		
	Revenue Receipts %	Capital Receipts %	Aggregate revenues %	Revenue Expenditure %	Capital Expenditure %	Aggregate Excenditure %
Second Plan	38 97	15 51	29 28	54 07	35 77	45 34
Third Plan	30 52	13 46	23 27	48 51	35 38	42 30
Three Annual Plans	30 52	13 94	23 27	49 01	35 66	43.18
Fourth Plan	30 65	15 71	24 94	51 84	38 18	46 06
Fifth Plan	32 06	16 09	27 35	49 17	38 49	45 06
Sixth Plan	42 00	21 32	34 94	50 91	41 39	47 54
Seventh Plan	39 70	22 73	34 56	47 92	41 23	46.12

Source: Compiled from various issues of R.B.I. Bulletins.

Another aspect of the federal financial transfers is that notwithstanding the fact that only a small proportion of the total transfers are channelled through the recommendations of Finance Commission, if these transfers are assured the state governments will not face any uncertainty The Finance Commission recommends transfer of financial resources through divisible pool of taxes and grants-in-aid The states' share of the divisible pool of taxes has been distributed on the basis of some criteria which have been moulded into a formula No such criteria are attached to grants-in-aid execpt that the states should be facing post-devolution non-plan revenue deficit It has been observed that the proportion of financial transfers made on the basis of a set of criteria increased upto the period of Sixth Finance Commission and started declining afterwards and the decline has been very sharp during the period of Ninth Finance Commission There is a disadvantage in the states receiving financial transfers in the form of grants-in-aid. Grants-in-aid are fixed in amount and remain stagant over a period of five years covered by the recommendations of the Finance Commission whereas the revenue from tax shares increases in response to the general improvement in the economy What is more, the states which do not receive any grant-in-aid suffer as a result of diversion of central revenues from the tax shares to grant-in-aid as ultimately both these forms of financial transfers have to come from the same kitty.

Another important issue relating to the federal financial transfers is the dissatisfaction of the relatively poorer states in terms of per capita income Though the successive Finance Commissions and the Planning Commission have been trying to use such criteria which would benefit the poorer states, the poorer states feel that they have not benefited much It is true that the criteria used by both the Finance and Planning Commissions do give relatively more to the poorer states without necessarily reducing the share of the better-off states But an impartial observer would ask a relevant question that even after 42 years of Indian federation if these states have remained poor not only in the level of economic development but also in providing certain essential public services, there must be more than one reason for this state of affairs In other words, the poorer states have been blaming the criteria used by the Finance Commission and Planning Commission for inter-se distribution of federal financial transfers and they contend that if they had diverted more revenues from the better-off states they would have received more resources and improved their economic position as well as the quality of public services. Opinions may differ on this line of argument It has been proved atleast in one particular specific field that the state governments themselves have been responsible for the neglect of certain essential services Take for example, the maintenance of public assets created under successive Plans Successive Finance Commissions have been allowing adequate level of expenditure in their expenditure forecasts so that the states would spend and maintain these assets in working condition But almost all the states have neglected this particular responsibility When they are compelled by circumstances, they divert the money from maintenance to other not so laudable areas in the name of plan expenditure Therefore, the experience has shown that even with good intentions and magnanimous recommendations, the Finance Commissions have not been able to ensure required minimum level of essential public services to all the people living across the country This requires a thorough re-examimation and appropriate modification in the method of devolution Against this general background let us outline the task before the Tenth Finance Commission

(To be Continued)

Hosiery Export

The knitting industry is poised to export hosiery products worth approximately Rs. 2000 crore in the coming year. Addressing the centenary celebrations of the Knitting Industry of India in New Delhi, Mr.M. Arunachalam, Minister of State for Industry said, about 17,000 units were directly and indirectly involved in hosiery and knitwear production. This industry provided employment to over 5-6 lakh persons directly or indirectly. Referring to the steps taken by the Government to modernise the industry, he said, import of second hand capital goods have been allowed at reduced customs duty. In addition import of machinery required for this industry was allowed under OGL.

Housing Problem In Mega-Cities And Some Suggestions

Shovan K. Saha

The problem of shelter will keep growing with urbanisation and the pace of our economic development. The author feels a dent to this can be made by encouraging constructing of houses through community participation He also stresses the need for a national housing information bank which will help in evolving realistic housing policies at the national, state and local levels

In demographic terms, in 1991 India had 23 mega-cities having a population size of 1 million or more, where nearly one-third of the total urban population (217 million) resided But in terms of quality of life, the proportion of the metropolitan population living in substandard conditions, surviving at subsistence level due to unemployment or underemployment, having low access to urban services and facilities seem to be increasing steadily The incidence and proliferation of the much talked about informal sector in the areas of commercial activities, industries and shelter is the proof of such a trend

On a conservative estimate, in the larger mega-cities upto two-third of the population live in marginalised living environments consisting of slums, squatter settlements and unauthorized colonies In the smaller ones, the proportion may be as low as one-fifth By the turn of the century, it is inevitable that our mega-cities will be more crowded, more intense in terms of diversity and magnitude of activities and perhaps more unattractive in terms of the quality of life attainable in them

Recognising shelter as one of the most important determinants of quality of life, currently, several agencies are involved in various capacities in trying to provide more and more dwelling units to the citizens Namely, HUDCO, State Housing Boards, Municipal bodies, development authorities, HFDC and NHB are concerned with provision of shelter in most mega-cities

Together, in a large mega-cities while they may be able to supply upto 30,000 to 40,000 dwelling units per year, the need may be to supply 50,000 to 1,25,000 units per year for the next twenty years, targeted at removal of backlog, supplying additional units for population growth of the city and meeting the need for replacing the good quality but aging housing stock in their

Assuming an average annual housing demand (AHD) of 50,000 units for each mega-city, the total AHD in all the 23 mega-cities could be upto 1 25 million dwelling units from 1991 to 2011 But by the turn of the century, if the number of mega-cities grow upto 35, the total AHD would amount to 1 75 million units from 2001 to 2020 This figure does not include the increase in the AHD due to accumulation of each year's unmet demand

Simplistically, meeting the AHD of 1 25 million DUs may amount to an investment of upto Rs 5000 crore annually or, an average annual investment of Rs 217 crore in each of the 23 mega-cities for the next 20 years Clearly, this is beyond the budgetary provisions of the agencies involved (1)

Till very recently, the role of the agencies have been that of a provider Frequently, while the agencies tried hard to provide technically sound houses,

according to conventional, text book specifications and norms, the beneficiaries rejected them on grounds of affordability and other factors. Due to lack of communication, the agencies often misunderstood the trade-off the beneficiaries had to reconcile between proximity to work place versus quality of living environment or between one time investment versus recurring or periodic investment for shelter.

Housing for the urban poor have been viewed as a welfare sector having no or little potential for economic benefits such as employment or income generation. Thus as a sector it received low allocation of funds.

Beginning with the founding of the Delhi Development Authority in 1957, nearly 150 development authorities have been established so far in large and small urban centres whose prime responsibility were to "prevent haphazard growth" and ensure "orderly development", including development of new residential neighbourhoods. Particularly in the recent past, while trying to supply new DUs or house plots to the low income families, the need of the higher income families remained unmet. As a result, the latter displaced and occupied the DUs meant for the former.

The Municipal bodies, on the other hand were almost exclusively responsible for maintenance of services and were not concerned with conservation or regeneration of the densely inhabited old housing stock, which became dilapidated, adding rapidly to the backlog figure. Further, the limited resources of the Municipalities-having no access to the metropolitan land market-did not permit them to undertake development of new, large residential areas.

Housing Need

Rational policies and programmes for supplying houses in the mega-cities can be evolved subject to awareness of the magnitude of the housing problem facing the decision makers. In case of Delhi, for example, so far the DDA has been able to supply a maximum of nearly 24,000 dwelling units in a year (DDA 1989-90). Compared to this figure what might be the AHD of Delhi? Surprisingly, the answer to this simple but fundamental question is not readily available for most if not all of our mega-cities.

But at the same time, availability of those figures is vital in order to evlove a realistic and effective metropolitan housing policy.

A simple method for computing the AHD given here consists of summation of the prinicipal components of the AHD, viz. db, dp, and dr, representing demand due to backlog, demand due to population increase and demand due to replacement of existing stock respectively. Using this method, the AHD of Delhi was estimated at 1,27,590 units.

Demand Due To Backlog (db): At any given point of time, the number of families living in the open (homeless), living in substandard houses such as those classifiable as dangerous or dilapidated, temporary as well as semi-permanent structures are included in 'demand due to backlog' or db. This number is divided by twenty assuming that the backlog is to be eliminated by the end of the twentieth year. If the backlog is small or removable in say, 10 years, the figure may be divided by ten.

Demand Due To Population Increase In The Mega-cities (dp): As it is well known, population growth in the Indian mega-cities continue to occur due to natural growth (40 per cent), in migration of new entrants to the mega-cities who try to settle down in them (40 per cent) and inclusion of new areas within metropolitan boundaries. Using available data, contribution of the first two factors may be computed, representing dp or 'demand due to popluation increase in the mega-cities'.

Demand Due To Replacement Of Existing Stock (dr): Those dwelling units in a mega-cities, which are in good condition and are made of permanent building materials such as brick and cement mortar walls, cement or mosaic flooring and reinforced cement concrete roofs need to be replaced after a period of 50 years. Therefore, every year 2 per cent of the existing housing stock needs to be replaced. Similarly, on the basis of the average life span of buildings using other materials, dr can be computed with reasonable accuracy. Presumably, other materials used in our mega-cities are less lasting than brick and concrete and thus needs to be replaced over a shorter span of time.

Thus, the total annual housing demand (AHD) of a mega-city is given by the sum of db, dp and dr, or, AHD=db+dp+dr

AHD computed by this method for ten Asian mega-cities were found to be close to the figures estimated by their respective official representatives in the Second and Third International Housing Training Seminars orgainsed by the UNCRD at Nagoya, Japan in March 1990 and 1991.

Affordability

Apart from the quantitative estimates of housing demand, an accurate assessment of the qualitative aspect of the demand is equally important. Invariably, the qualitative aspect is determined by affordability of the beneficiaries. A realistic idea of the qualitative aspect can be obtained by finding out i) income of the beneficiaries and ii) the proportion of their income used for shelter. An assessment of the dynamics of the changing proportion of the income used for shelter with enhancement of income helps in identifying the future needs.

As already indicated earlier, supply of housing units to all income groups is important, since otherwise, a large proportion of the targeted beneficiary groups-usually representing the low income category-are easily forced out of the housing market by higher income groups. Thus it is important to estimate the AHD quantitatively as well as qualitatively for the different income categories in order to evlove and adopt appropriate strategies to meet the different

types of housing demands generated in the mega-cities.

Rapid socio-economic and cultural changes is common among the inhabitants of mega-cities. However, such changes are rarely reflected in the design of housing projects sponsored by the official agencies For example, none or at best a negligible proportion of the dwelling units under the self financing scheme, marketed by the DDA for the middle or even high income groups have had the provision to accommodate a washing machine at an appropriate location The possibility of the popularity of such a gadget in Delhi was visibly overlooked by the designers Another example in this context is that of the lack of vehicle parking spaces in most apartment type housing sponsored by the DDA

Depending upon the circumstances, improvement of living environment is sought by urbanite families through either in situ improvements or house moves (i e moving into a house in a different locality) Eventual saturation of possible in-situ improvements or glaring disparity between living standards of a family compared to its neighbours may lead to house moves Whereas gradual improvement of economic and social status of a family, gaining of a sense of familiarity and security by being in a given neighbourhood for several years may prompt a family to continue to live in the same premises but undertake small in-situ improvements incrementally

Since this aspect of housing demand is behavioural it is hazardous to estimate accurately the annual demand for house moves or in situ improvements in a mega-city. However, experience of certain countries such as Japan shows when the available number of houses is about 10 per cent more than the required number, a policy for improvement of living environment through house moves becomes easier to pursue By adopting this method, it becomes possible to treat shelter as a commodity under constant circulation in the market.

Lessons

Certain shelter projects like the Urban Community Development Programme in Hyderabad (UCD), the Million Houses Programme (MHP) in Sri Lanka and the Kampung Improvement Programme (KIP) in Indonesia achieved great success within their frames of objectives and constraints. Replication of modified versions of those models appears to be a feasible alternative towards solving the big-cities housing problem in India.

UCD, Hyderabad

In 1962-63, the Government of India had initiated the Slum Clearance Scheme and later the Environmental Improvement Scheme both of which got shelved due to several reasons such as unaffordability, absence or low priority of social and economic development components, too much of emphasis on community services and too little concern for improvement of individual dwellings etc.

Prior to the UCD of Hyderabad, urban community development was initiated in India on an experimental scale in Delhi (1958), Calcutta (1966) and other cities The objective of urban community development programmes were defined at that time as "self generated process of mobilisation of physical and human resources for the purposes of promoting the welfare of all individuals of the community" (GOI 1959) Thus the philosophy of the UCD was to proceed on the assumption that any neighbourhood, no matter how poor, can do something to improve itself by its own efforts, and that any approach for outside help should be resorted to, only after it has exhausted its own resources fully

In 1976, when the UCD was initiated in Hyderabad, its AHD was 44,000 units while the supply was nearly 7,000 units per year The main features of UCD Hyderabad which contributed significantly to its success were·

i) Preparation of layout plans with community participation.

ii) In case of laying of new access roads or water supply network etc., adjustment of plot sizes through negotiation between the agency and the community

iii) sharing of cost of development by the community and the UCD agency and also by the Municipality.

iv) Economy in construction cost by utilizing community labour force, reuse of materials from old or original houses

Other features of the UCD Hyderabad included approval of the schemes by HUDCO and other concerned agencies, clearing of site and provision of temporary shelter to enable reconstruction of original slums and repayment of loans beginning from the end of six months after completion of the projects

But most importantly, UCD Hyderabad included social development and employment generation programmes such as child welfare, Women's Welfare, Youth Welfare and Shelter Contruction The details of these programmes were evolved after carefully considering the felt needs of the respective communities identified through discussions between the UCD officers and the target communities

So far, the UCD of Hyderabad has been the most successful shelter improvement programme in India Evidently, the secret of its success were community involvement from the initial stages, adoption of a holistic approach while trying to improve the living environment of the slums, commitment of the UCD workers and support of the decision makers at the political as well as administrative levels

MHP, Sri Lanka

The well known and well documented MHP (Million Houses Programme) of Sri Lanka was launched by the Government of Sri Lanka in 1984 By 1988, the MHP had achieved spectacular success by reaching "over 80% of the targeted families for the three years" (i.e.1986, '87 and '88). During

the same three years, in Colombo Metropolitan Area, more than 7,000 families were reached who also benefitted significantly in terms of improvement of the infrastructure within their living environments. Such improvements strenghtened their livelihood means, mostly operated from homes.

The NHDA (National Housing Development Authority) of Sri Lanka which was the main agency responsible for executing the MHP on ground adopted a supportive policy from the very beginning of the programme That is, "the State is to support family and community initiatives and actions for their own development and intervene only when people cannot do something by themselves"

Usually State support was used for legitimising community organisations, land tenure, installation of infrastructure, health care service and gaining access to information, training and small credits for house construction The three key features of the MHP were

i) **A people centred model of development** was pursued Development of the human resource in the form of beneficiaries of MHP as well as utilizing their initiatives and efforts for improvement of their own living environments was encouraged

ii) **Use value of land was given a higher priority** over market value of the land In an unusual departure from the conventional practice of evicting or relocating a shanty town occupying a prime parcel of land earmarked for other purpose (such as a market), they were permitted to continue to occupy it since it was thought to be more useful compared to the planned use on it

iii) **Locally derived small solutions for many were preferred to externally determined sophisticated solutions.** Improvement of shelter through devices and means innovated by the beneficiaries themselves were adopted instead of using those perceived by professionals. This method was particularly effective since the beneficiaries could evolve solutions within their limits of affordability and knowledge. Perhaps at a subsequent stage of improvement, the role of professionals will be welcome and even inevitable

From the very beginning, the MHP was heavily dependent on participation of the beneficiaries at every stage of the programme Effective participation was achieved through Community Development Councils (CDC) and the Community Contract System (CCS)

Depending upon the number of members of a settlement, the CDC consisted of annually elected members representing 50 to 125 families Once formed, a CDC is registered with the Municipal Government and negotiate on behalf of the community regarding modes and mechanisms of improvements Mostly improvements such as construction of common toilets, footpaths, garbage bins etc were executed by groups of beneficiaries authorised by the CDC The Municipality gave contracts, loans for all such work to the CDC This mode of implementing improvements was called CCS In order to ensure accountability, the CDCs took decisions openly, in the presence of the community regarding all matters

In addition to direct shelter improvement, MHP had provisions to support sub-programmes such as 'Enterprises Support Programme', which permitted individual members of the community to take loans to start livelihood projects for themselves It was observed that having obtained stable and secured shelter many unemployed men and women were able to profitably sustain small ventures such as cultivating flowers, preparing ready-made food packages etc that enhanced family income significantly

Above all, the success of MHP was possible due to "unreserved political commitment and humility of political authority to learn from the people"

KIP, Indonesia

Though originally this programme was initiated by the Government of Indonesia in 1969 in Jakarta, it took off in 1974 when World Bank funds flowed into the programme. Like the MHP, KIP also received world wide attention as it made a significant dent towards resolving Indonesia's gigantic housing problem within a period of ten years.

In 1974, two-thirds of Jakarta's population lived in Kampungs or informal settlements which accounted for 59 per cent of the total housing stock in the mega-cities During 1974-84, 431,000 dwelling units were added to the housing stock of Jakarta out of which 320,000 were in Kampungs The essential features of the KIP were

i) **Focus on community services:** The central focus of the KIP has been the Kampung as a whole rather than improvement of the individual dwellings Thus, KIP brought roads, drainage, water taps-in other words, municipal services-as well as school and clinics to the Kampungs However, it was noted, "The weak point in the programme is the disposal of human waste, neither an idea of providing public toilets nor an idea of inducing people to build on-plot pit latrines worked satisfactorily, and still today many people go to the canals and swamps "

ii) **Compensation to the affected by the community:** Frequently as a result of introducing the municipal services in a Kampung, some individuals had to give up part or whole of their land or house But as a special feature of KIP, the affected individual or family was not entitled to recieve monetary compensation for the same. But the benefitted members of the Kampung on the other hand, were supposed to find an acceptable solution to the problems of the affected families. Failing this, the Kampung was to be dropped out of the KIP.

iii) **A top-down approach:** Although KIP may be perceived as a community participation based shelter improvement approach, it was practised as a top-down development process

where the decision making as well as flow of finances were initiated, organised and monitored by the Perum Perumnas or the National Urban Development Corporation. Perum Perumnas was instituted in 1974 as an autonomous agency which could mobilize finances from domestic and international sources and evolve its own planning and implementation programme, including sale and leasing of the dwelling units.

Apart from the above mentioned features of the KIP, a few others, which are thought to have contributed significantly to its success were: i) It depended on the traditional community structure for community negotiations, agreements and decisions as practised in the villages that led to strengthening of the relationship between individuals and families ii) It did not deplete the housing stock even temporarily iii) It permitted a great deal of flexibility in terms of the quality of improvements, thereby ensuring affordability of the beneficiaries. iv) It provided breathing time to develop new residential neighbourhoods. v) It permitted adoption of simple technologies to which the community was familiar with

Recent Trends

The NCU (GOI b, 1988, pp205-29) offered a general perspective of the urban housing scene in India and put forward a series of inferences such as i) a quarter of India's urban population or, over fifty million persons live "with multiple deprivation". ii) Only 80 per cent of the annual incremental demand is met by formal housing supply iii) Shelter problems in India's towns and cities comprise slum upgradation, conservation of old stock and addition of new stock. iv) 1 6 million units need to be supplied in the form of incremental shelter, that calls for investment of Rs 6,000 crore and that 60 per cent of the targeted beneficiaries (representing the poorer sections of our society) will not be able to afford such houses In view of the above, the NCU observed:

"To shelter the millions living in sub-standard housing and environmental conditions in urban slums and on city pavements within the limited resources at our disposal and a reasonable time-span it is necessary to depart significantly from existing practices, bring about a notable change in perspective and adopt a new set of values, both for the housing client and those who make decisions on their behalf."

Therefore, the NCU proposed eleven changes in terms of departures from current practices Ten of them consisted of new definitions, new relationships, new economies, new thrust etc Like the analysis, the proposals were also most comprehensive in their coverage that highlighted the importance of aspects such as community participation, finance, land, institutional reorganisation and the relevance of the Hyderabad Urban Community Development Project experience to name a few, while trying to show a way to resolve the urban housing problem of India

The National Housing Policy of May 1988, among other suggestions, indicated clearly that i) the agencies concerned with supply of shelter should adopt roles of facilitators rather than those of providers and builders, ii) a National Housing Bank should be established in order to ensure access to financial assistance to the beneficiaries as well as to ensure recovery of loans etc , iii) disadvantaged groups such as war widows, scheduled castes and tribes should be given a higher priority and iv) by the turn of the century (2,000 AD), housing backlog should be wiped out completely However, though the preamble of this policy document (GOI 1988a) underlined the great importance of the link between housing and socio-economic development, employment generation through housing or human resource development through literacy programmes etc did not figure as part of the proposed housing policy.

The Housing Policy of 1992 observed that the 1988 policy was approved by the Rajya Sabha and that there was a need to elaborate the contents of the 1988 document in the context of the formulation of the VIII Plan.

Essentially the 1992 document reflected the proposals of the 1988 policy It underlined the enabling role of the agencies and indicated that within the next ten years houselessness had to be reduced, more developed land and finance had to be supplied, upgradation of unserviceable houses had to be stepped up, minimum level of basic services had to be provided in order to ensure healthy environment and energy saving and cost effective materials and technologies had to be used. The fourteen elements shown as parts of the Housing Policy included all aspects directly and indirectly related to housing and also an 'Action Plan'.

The Action Plan began by pointing out that housing is a State subject and that they should be evolved at the local level with effective participation by the local bodies and citizens' groups But more importantly, the Action Plan indicated that housing needs should be estimated in terms of number, types to be supplied by the private and public sector and those to be supplied to the housing rental market It further suggested to estimate housing needs separately for the rural and urban areas and also on the basis of affordability The Action Plans were proposed to be designed for implementation within one year periods (GOI 1992).

Conclusions

That metropolitanization and urbanization are the unavoidable "evils" associated with India's economic development that is growing more and more dependant on liberalisation towards global economic transactions, is well recognised. Under this situation, it can be safely expected that over the next few decades, suppression of demand for more and more dwelling units of different types in our mega-cities will be impossible and that acceleration of supply of shelter to the urban centres in adequate

numbers may be possible only through community participation.

The validity of the concept of community involvement in resolving the shelter needs was also well recognised in India since 1950s. Even so, till very recently, little has been done to promote that concept on a mass scale by the public sector agencies This seems even more surprising in view of the success of the UCD in Hyderabad nearly twenty years ago, during the mid-1970s

In essence, the UCD of Hyderabad, the MHP of Sri Lanka and the KIP of Indonesia were similar in their objectives and results But the KIP and the UCD represented top-down development processes though the MHP was a bottom-up development process The role of the workers (who represent either the NGOs or volunatry organizations or the concerned agencies) were vital for the success of both the UCD and KIP In case of the MHP, on the other hand, as long as the community itself is articulate and clear about its priorities and limitations, improvements can be done incrementally, over a longer period of time The philosophy of the UCD and the MHP is surprisingly similar in that they both began with the realization that even the poorest among the citizens are capable of finding some ways and means to improve their living envrionments within their own frame of constraints, which, generally fall beyond the perception of formally trained professionals

The current thoughts of the Government of India regarding housing policy recorded as "National Housing Policy" (May 1992) seem to recognize the magnitude of the housing needs in both the rural and urban areas and also reiterates that under the Indian Constitution, 'housing' is a State subject and that it better be so due to the "variations in housing needs and resource endowments in the country "

Documents such as the one mentioned above are not endorsed by any Act of Parliament and are therefore not official policy documents For all practical pursposes, to this day, India does not have a housing policy, far less a metropolitan housing policy that can be implimented or pursued by the concerned agencies, state and local governments

As such it is amply evident that the demand for shelter in our mega-cities must be met urgently and realistically in order to sustain the national development at a reasonable pace

The first step towards evolving appropriate ways and means to meet the housing demand from time to time is to create a national housing information bank from where all states and UTs should be able to draw the necessary data about shelter provision experiences of all regions in India and abroad in order to draw up rational housing policies at the national, state and local levels Considering urbanization as a process that leads to improvement or changes in economic, social and cultural terms, provision of adequate housing in the mega-cities should be recongnized as i) a pre-condition of starting of productive, working lives for millions in a mega-city and ii) when replicated on a large scale, housing supply process works as an economic sector instead of being a welfare sector

Perceived as above, metropolitan housing can be considered as the most important domestic industry for at least the next few decades

Notes

(1) The NCU (1988, Vol. 2 p209) report assumed a cost of Rs 1200 per sqm for estimating cost of houses including cost of land, according to NBO standards In the present calculation, the cost is assumed at Rs 2,000. Considering area of each dwelling unit as 20 sqm , the total investment works out to Rs 12 5 lakhx20 sq m x Rs. 2,000 (including land price) Or, Rs 5,000 crore

(2) The normal life span of a building using brick, cement mortar, reinforced concrete etc may be upto 100 years provided the specification and quality of construction is good But commonly both the specifications and quality of construction being of average order, a life span of 50 years was reccomended to be used ❐

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Management Of Municipal Solid Wastes

J.C. Kala and R.R. Khan

WITH rapid increase in population, the generation of municipal solid wastes in our cities has increased several fold during the last few years Though several steps have been taken by local municipal bodies for management of these wastes, only a small fraction is being properly utilised or disposed of in a scientific manner As a result, our major metropolitan cities are facing serious environmental problems leading to degradation of water, air, soil and vegetation

The urban share of India's total population is expected to grow from 23% to 32% over the period 1981 to 2001 Half of all population growth will be in the urban areas over this period and the urban population will more than double The urban population at the end of this century is estimated around 33 crore

An analysis of urban growth in the last decade shows that while the general decennial growth rate of urban population during 1971-81 was 46 02%, the growth in Class I towns registered 56 83% Class II towns grew at a pace of 51 22% Another notable feature of urban growth is that 60.37% of urban population are living in Class-I cities alone The trend clearly indicates that large cities and towns grew at a faster rate This could be attributed to certain factors like availability of infrastructure, employment potential, recreation and education facilities and ever growing trade and commercial opportunities in such places Again, when the urban situation of different states is analysed, it may be concluded that the process of urbanisation depends on the degree of industrialisation.

No reliable statistics on generation of Municipal Solid wastes is available in the country A sample survey has indicated that about 350 to 400 gms of per capita per day solid waste is generated in an average Indian town In major metropolitan towns, it may rise to approximately 400 to 425 gms, while in Delhi, it is around 800 to 850 gms per capita per day A study conducted by Operations Research Group, Baroda during 1989 has given the following statistics of solid wastes generation in major cities in India

For the purpose of municipal solid waste management, a town is divided into wards and units with a minimum number of collection points, from where waste is collected and disposed In larger centres like Bombay, Madras, Ahmedabad, etc, the waste is collected from collection points and sent to a transfer station from this point, it is then transferred for disposal In most towns the cleaning of streets and waste is categorised in 3 classes Streets are cleaned every day, once in two days, and once in three days In terms of vehicle fleet most small and medium towns use tractors whereas it is highly mechanised in larger towns The producticity of mechanised vehicles is reflected in waste collection. On an average 82.8% of waste generated in metropolitan towns are collected whereas only about 59% are collected in Class-I and class-II towns

Municipal garbage especially from domestic and commercial areas contains recyclables (paper, plastic, rubber, metal, glass), toxic substances (paints, pesticides, aerosols, used batteries, medicines and others), compostable organic matter (food left over, fruit and vegetable peels spoiled food or faecal matter) and soiled waste (blood stained cotton, sanitary napkins, disposable syringes, nappies, used drips and others) In most cities in India, the decomposable organic matter is the highest component of the municipal solid waste and makes up nearly 70 to 80 per cent of it It is this component of solid waste which when left uncleared, starts decomposing emitting not only bad odour but is also the cause of breeding and proliferation of undesirable and disease-causing lifeforms

Disposal

A number of methods can be utilised to treat and dispose of the refuse that is generated in cities The feasibility of various methods, however, may be dependent upon local conditions, includ-

Town	Population (1981)	Solid Wastes		Collection efficiency (%)
		Generated (Tonnes)	Collected (Tonnes)	
Bombay	8,227,332	3200	3100	96 9
Madras	4,276,635	1819	1637	90 0
Bangalore	2 913,537	1800	1225	68 1
Ahmedabad	2,515,195	1200	1080	90 0
Kanpur	1,688,424	2142	1500	70 0
Pune	1,685,300	1000	700	70 0
Lucknow	1,006,538	600	500	83 3
Total		11761	9742	82 8

ing the availability of land, the market conditions for refuse-generated products (e.g. heat, compost, power, etc), transport facilities and equipment, and the availability of skilled labour. Following methods are available for the disposal of municipal solid wastes

Sanitary Landfill: Sanitary landfilling is a method of disposing of refuse on land without creating nuisance to public health or safety, to confine the refuse to smallest practical area, to reduce it to the smallest practical volume and to cover it with a layer of earth at the conclusion of each day's operation or at such more frequent intervals as may be necessary This method helps in restoring as a disused surface or improving natural contours like raising the level of low-lying land to enable it to be used for cultivation or industrial development

In our country over 90 per cent of the solid wastes are disposed of in landfills However, in most of the towns, crude dumping of the solid wastes is done rather than sanitary landfilling Bulky and hollow articles, even pieces of furniture are pulverised as a preliminary treatment before landfilling By shredding cartons, breaking bottles and crushing cans in a hammermill, a fairly homogenous mixture of wastes, of reduced particle size, is produced This occupies less space at the time of deposit

Composting High vegetable-putrescible content wastes are ideally suitable for conversion into organic fertilizer rich in nitrogen, phosphate and potash by composting Economic forces also favour composting where high food production is of great importance and expenditure on imported fertilizer are limited by foreign exchange constraints Due to these reasons, it is generally believed that composting is the best method of disposal of municipal solid wastes in India

The concept and application of composting is well known in India For centuries, composting has been the best known method of making manure from organic matter to sustain better crop yields and soil productivity In recent years, many universities and some organisations in Bangalore, Pune and Bombay are developing and working on composting technology for large scale application to facilitate gainful utilization and disposal of the growing mass of urban solid wastes in an environment-friendly manner.

Composting is a process by which organic waste is converted to compost or manure in the presence of air (aerobic) or absence of air (anaerobic) The main advantages of the anaerobic composting are that it is a concealed process and can be used for biogas generation However, this process takes a fairly long time (6-8 months) It also often does not ensure complete bio-degradation and produces bad odour The aerobic composting on the other hand is quicker (2-3 weeks), more complete than anaerobic process and produces very little odour The main disadvantage of this process is that in case of poor management practices, it attracts various disease producing vectors It also needs constant turning and maintenance of a temperature of about 55 C

Lately, earthworms have been used in the city of Bangalore to produce high-quality manure in households Experiments on developing household vermicomposting kits have also been carried out

Important preconditions to be fulfilled for adoption of composting as the treatment and disposal method are (a) suitability of wastes, (b) market for compost within reasonable distance, (c) price of the compost acceptable to cultivators, and (d) sustainable net disposal cost

Incineration: Incineration is a process of controlled combustion for burning solid, liquid and gaseous combustible wastes to gases and residue containing non-combustible material During combustion, moisture is vapourised whereas the combustible portion is vapourised and oxidised Carbon dioxide, water vapour, ash and non-combustibles are the end-products. Recovery of heat has been practised in developed countries. The recovered heat can be used for heating water and generating electricity

Incineration process should be considered after complete economic and environmental impact analysis in comparison with other methods of treatment In conditions where wastes are too low in calorific value, high in moisture content, and capital and operating costs are likely to be beyond sustainable limits of the cities, incineration is definitely not suitable

Refuse Derived Fuel Production: The main purpose of the Refuse-derived Fuel (RDF) method is to produce an improved solid fuel or pellets from refuse originating from households, commerce and industry The material used in RDF production is mechanically separated from the refuse The overall process for treating waste under this method is as follows

- all waste is initially shredded;
- light waste materials are then separated,
- separated waste materials are dried and
- dried mterials are compressed into pellets

Based on an analysis of refuse composition, the RDF fraction will normally amount to approximately, five to ten per cent Refuse from some districts, however will contain more light materials, thus making the RDF fraction slightly richer (approximately ten to twenty per cent) The RDF produced is normally used by local industries, heating plants or power plants

A pilot plant has been set up by the Department of Science and Technology in Bombay (Deonar) for processing garbage into fuel pellets It is based on indigenous technology A similar project has been established by M/s Shivshankar Engineering Company Pvt Ltd in Bangalore and has got regular production of fuel pellets since October, 1989, compacting 50 tonnes of garbage per day converting into five tonnes of fuel pellets The fuel pellets can be designed both for industrial and domestic uses A

stove which facilitates effective combustion for domestic purposes has also been developed.

Recycling

All forms of treatment of wastes provide opportunities for recycling, because facilities for the extraction of saleable materials can be incorporated in the plants Following constituents of domestic wastes are commonly extracted for industrial use

- paper, for re-pulping,
- textiles for paper making, machinerywipers, etc,
- metals for re-melting,
- glass for re-melting,
- rubber for gowngraded use,
- plastics for production of inferior grade plastic

In India, some kinds of wastes are also extracted from the domestic wastes for personal use in the low income areas The wastes extracted are

- cinders, fragments of coal, coconut shells etc, for use as fuel,
- metal cans for use as domestic vessels,
- vegetable wastes for animal feed

In specific situation, planned recycling may be profitable where the high value of recovered materials and the low-wage cost of recovery and recycling compensate for the relatively small proportions present in the wastes

Regulatory measures

Public health and sanitation are state subjects Collection and disposal of wastes in the urban areas is entrusted to the local urban body The municipal laws lay down detailed lists of obligatory and discretionary duties Due to the direct bearing of sanitation on the health of the people, it has been listed as obligatory duty and therefore, the civic authorities are required to take adequate measures

Though for waste-water disposal, standards have been prescribed, there is no such standards for solid waste disposal except otherwise stating that it will be removed by the local body, the local body will identify places for treatment and final disposal of solid wastes Processing of solid wastes will also be done by the local body.

Local civic authorities in States like Uttar Pradesh, Punjab, Bihar, Tamil Nadu, West Bengal are governed by statutes passed in 1916, 1911, 1922, 1920 and 1932 respectively which deal with collection and carting away of waste Developments taking place in other areas as well as urban complexes do not get reflected in the laws to satisfy modern urban living conditions The old regulations suffer from the defect that the various categories of wastes for which they would be applicable are not covered in sufficient details and are made applicable for domestic and to some extent trade wastes They do not provide sufficient powers to the civic authorities for prosecution of offenders with the result that the enforcement has become ineffective

Problems

Lack of an established system for collection, transportation and disposal and complete networking is the major constraint for proper disposal of municipal solid wastes The local bodies which are responsible for proper disposal of urban wastes are over-burdened and have additional responsibility of much higher priorities like immunisation, food sample testing, street cleaning, etc Waste disposal is relegated to the end of the list Where it has been possible to establish disposal system, these are not operated and maintained properly The reasons for poor operation and maintenance are

(i) Inadequate finances
(ii) Multiplicity of agencies for operation and maintenance
(iii) Inadequate training of personnel
(iv) Lack of performance monitoring
(v) Inadequate emphasis on preventive maintenance
(vi) Lack of management
(vii) Lack of appreciation of the importance of the facilities by the community etc

The burden of environmental degradation falls largely on the poor who do not have the means to choose their living conditions as they become the victims of development As the country proceeds on the path of industrial and urban growth, the generation of solid waste in cities would continue. We have to see as to how efficiently we can manage the solid waste disposal in most cost effective manner Efficient ways and means for the collection, treatment and disposal of the re-cycled products and use of by-products have to be found out Composting is one of the cost-effective solution in the present situation especially applicable to the type of solid waste generated in Indian cities

Sound organisation is also important for waste management as the health of the community is so intimately connected with the environmental cleanliness However, the organisational structure and the distribution of responsibilities will vary from city to city in respect of quantity and quality of wastes, population and its area, type of collection system, codes and bye-laws

At present, the involvement of the Government of India, is limited to sharing the subsidy component for low-cost sanitation for the economically weaker section only Apart from this, there is no other centrally assisted programme for urban waste management However, mention may be made of Ganga Action Plan-a unique initiative under which there are provisions for interception and treatment of wastes generated in the towns located on the banks of the river Ganga. The role of the Ministry of Urban Development, Government of India is largely limited to advising the urban local bodies, supporting Research and Development and providing technical assistance to the States and urban local bodies ❐

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Need For Revamping The Rural Cooperatives

Dr. Balishter

The rural cooperatives should aim at catering to the requirements of all persons instead of fixing attention on agricultural credit only. The author feels, to be effective, these cooperatives should have substantial representation of weaker sections in their managing committees and also a certain portion of credit should be earmarked for these sections

AFTER Independence the objective and the efforts to secure a large increase in agricultural production planned and initiated as a part of planning for economic development made the role of cooperative credit more positive and crucial, not only as a substitute for money-lenders, but as a dependable source for financing agricultural production and development The All India Rural Credit Survey Committee (1951-52) stressed to strengthen and develop cooperatives in order to meet the entire credit needs of the cultivators While making this recommendation, the Committee was quite conscious of the structural and other deficiencies in the functioning of cooperatives Nonetheless they did not visulalise any other alternative institutional agency and desired that the cooperatives should alone be developed as the sole institutionl agency for agricultural finance This Committee recommended drastic measures under the Integrated Scheme of Rural Credit for making the cooperative system a success As a result of implementation of the measures suggested by the AIRCSC under Integrated Scheme of Rural Credit, the proportion of cooperative in the total borrowings of farmers had increased from 3 1 per cent in 1951-52 to 15 5 per cent in 1961-62 The Banking Commission (1972) has also stressed the suitability of cooperative agency at the rural base According to the Commission, the local participation, democratic management and responsiveness to local needs urge that characteristic cooperative organisations to make them the ideal type of institution, to be sought after' The Commission had recommended the strengthening of the PACs to provide adequate credit and develop banking and allied services

The cooperative institutions which directly provide credit to individual borrowers are the primary agricultural credit societies providing both short-term and medium-term credit and the Primary Land Development Banks (PLDBs) providing long-term credit

The primary agricultural credit societies functioning at the village level form the real base of the cooperative credit structure in the country and on its working depends to a large extent, the soundness of the whole credit structure. The number of primary agricultural credit societies in India declined from 2 12 lakh in 1960-61 to 1 57 lakh in 1971-72 and further to 89,000 in 1986-87, but the membership in these societies steadily increased from 170 lakh in 1960-61 to 719 lakh in 1986-87 The decrease in the number of societies is on account of the policy of the Government to reorganise societies into viable units by merging or eliminating sick units but the increase in membership indicates the growing awareness among the rural people about the usefulness of cooperative system The increase in the membership of each society added to its economic strength in form of increase in its owned funds enabling the society to expand and strengthen its activities The deposits of these societies increased from Rs 75 crore in 1971-72 to Rs 709 crore in 1986-87- an increase of more than 9 fold during this period The owned funds of these societies increased to more than 4 times from Rs 292 crore in 1971-72 to Rs 1194 crore in 1986-87 Their borrowings increased by nearly 6 times form Rs 740 crore in 1971-72 to Rs 4326 crore in 1986 87 and the outstanding loans advanced by these societies increased by over 4 times from Rs 856 crore in 1971-72 to Rs 4,635 crore in 1986-87

It may, however, be noted that the deposits of the societies amounting to Rs 75 crore in 1971-72 and Rs 709 crore in 1986-87, respectively accounted for only about 8 8 per cent and 15 2 per cent of their outstanding loans In contrast, the borrowings of these societies constituted 93 3 per cent of their outstanding loans in 1986-87 as against 86 3 per cent in 1971-72 which clearly indicates the growing dependence of these primary societies on external resources

This implies that these societies have not been able to stimulate thrift and

mobilise required savings from the rural households.

Regional Disparities

Considering the total supply of co-operative credit in 1984-85, per hectare availability ranged from Rs 24 in Bihar to Rs 1490 in Kerala Bihar, Jammu & Kashmir, Madhya Pradesh, Orissa, Rajasthan, West Bengal, Uttar Pradesh andKarnataka had relatively lower share of cooperative credit available per hectare than the national average of Rs 165 per hectare. The amount of loan was the highest (Rs 2551) in Gujarat and the lowest (Rs. 231) in Bihar The distribution of cooperative credit per borrower was found to be highly concentrated in the relatively developed States of Gujarat, Haryana, Kerala, Karnataka, Maharashtra, Punjab and Tamil Nadu, while the relatively backward regions of the country including Bihar, Orissa, Jammu & Kashmir, Rajasthan, Himachal Pradesh, Uttar Pradesh and West Bengal had comparatively low amount of cooperative credit per borrower When measured in aggregate terms, the eight States of Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Punjab, Haryana, Gujarat and Maharashtra accounted for about 65 per cent of the total cooperative credit advanced during 1984-85 This clearly indicates marked regional disparities in the flow of cooperative credit The concentration of cooperative credit in relatively developed States is due to a higher level of education in these States which helped people to understand the advantages of cooperative credit system and awareness of the farmers regarding new farm technology

The notable feature of agrarian scene in our country is the predominance of small and marginal farmers constituting 76 4 per cent of the total number of farmers in the country though the area commanded by them is only about 28 8 per cent There is evidence to show that the class of marginal and small farmers has grown over time.

In fact, the pace of agricultural development cannot be accelerated if adequate provision of credit is not made for small and marginal farmers because they do not have the same easy access to the door steps of institutional agencies as in the case of the big farmers. The cooperatives since long were dominated by the big farmers which caused embarrassment to the small farmers in availing credit Therefore, government launched special programmes for the small and marginal farmers and other weaker sections of the rural community The institutional financing agencies have been directed to give special attention to the marginal and small farmers in advancing loans As a result the per hectare loan advances were higher on small farms below two hectares than the non-small farmers This implies that the marginal and small farmers are no worse than the large farmers in taking full advantage of the modern technology. But here it is disappointing to note that only 20 per cent of small farmers were covered by these societies while this percentage for non-small farmers (above 2 hectares) was 42 Thus there is need to make efforts to cover more small farmers by these primary societies to accelerate the pace of agricultural development

Weaknesses

Cooperatives are people's organisation for ameliorating their economic conditions through thrift and mutual help. They are borrowers' own organisations having a democratic set up It is obvious that the cooperative credit system has made considerable progress in the field of agricultural finance but their performance could not come up to the expectation This is due to the fact that the cooperative credit system suffers from certain serious weaknesses, some of which have been discussed below

(1) Non-viability: A large number of primary agricultural credit societies functioning at the base level are weak and non-viable. These societies are not in a position to cater effectively to the needs of their members The Report of the Committee on Cooperative Credit (1960) suggested that a viable unit is "one which might be expected, within a reasonable time, to render the more important of the services expected of credit societies both adequately and to as large a number of producers as possible, without depending upon financial assistance from Government except for a limited period". According to the All-India Rural Credit Review Committee, 'A large number of primary agricultural credit societies are neither viable nor even potentially viable and must be regarded as inadequate and unstisfactory agencies for dispensing production-oriented credit" The data for 1979-80 indicate that out of 94,592 PACs, about 6128 were dormant and 36,125 were incurring lossess Small area of operation (a village or at the most an adjacent village), small number of membership, consequent failure to mobilise funds from members and non-professional staff are some of the important reasons responsible for this state of affairs It was, therefore, felt necessary to reorganise these societies into strong and viable units As a result of this policy the number of Primary Agricultural Credit Societies (PACs) has decreased while their membership increased It is, however, felt that despite considerable efforts devoted to reorganisation of these societies their quality of operation has not improved to the desired extent The Committee to Review Arrangements for Institutional Credit for Agriculture and Rural Development (CRAFICARD) stated that 'even where the reorganisation exercise has been completed, the quality of operations has not improved to the desired extent

(2) Weak Central Banks: The continuous existence of weak central cooperataive banks is another problem facing cooperatives Out of the 314 Central Cooperative Banks in the country, only 214 were viable The weak central cooperative banks cannot provide the required refinance facilities to the primary agricultural credit societies It was suggested that to promote the viability of the Central Cooperative Banks it should be ensured that their jurisdiction is not less than a district so that they have

sufficient business to ensure viability. It was also suggested that the primary agricultural credit societies functioning within the jurisdiction of weak central cooperative banks shall be allowed to borrow directly form the Apex Banks.

(3) Insufficient Deposit Mobilisation: One of the major objectives of the cooperative movement in the country has been to inculcate the habit of thrift and saving amongst the members. The principle is practised by accepting from members and non-members various kinds of deposits Though the increase in the deposits of cooperatives in recent years has been quite noticeable, but the overall performance in raising deposits has been extremely unsatis factory which implies that these societies have not been able to inculcate thrift and saving habit among its members The insufficient mobilisation makes these societies highly dependent on the central cooperative banks for the resources required for their lending transactions It may be mentioned that the success and efficiency of any credit agency depends on the extent to which it is able to mobilise the savings of the community in the form of deposits This is more important in case of cooperatives due to their emphasis on thrift These deposits also help pool idle money and put it to productive lending to the agriculturists The unsatisfactory performance of these societies in mobilising deposits indicates their failure to inculcate thrift and saving among the members and to ensure adequate working capital for their proper functioning.

(4) Managerial Inefficiency: The managerial inefficiency is another weakness of the cooperative institutions which is causing public concern The cooperative staff is not competent to function properly and effectively in the wake of new policies, plans and programmes for agricultural and rural development. The main reasons for low managerial efficiency are low paid and non-professional cooperative staff, which lack proper training in cooperative management to ensure efficient and objective working. The All India Credit Review Committee states, "it is one aspect of the lack of a business like approach on the part of cooperatives that they have been content in many areas to make do with low paid and non-professional staff. While the efficiency of such staff was not always equal to the needs of the institutions, their selection was often influenced by considerations of local patronage or personal favouritism" It may be mentioned here that poor quality of management is one of the important factors responsible for heavy overdues of loans in cooperative institutions

(5) Governmental Interference: The cooperatives have great potential but invariably they have not been allowed to function free of Government interventions and interferences Their democratic functioning has been throttled in many States It is, therefore, essential to restore autonomy to them by withdrawing restrictive provisions of the cooperaive law The cooperatives have to be viewed essentially as peoples' organization supported by the Government rather than an agency of the Government's cooperative department

(6) Overdues: The problem of mounting overdues in cooperatives is a matter of another serious concern to the policy makers The soundness of the whole cooperative credit system, to a large extent, depends on the timely recovery of the loans advanced to the farmers, which unfortunately, is being undermined by the growing tendency of defaults in repayment of these loans by the farmers because of political, economic or social reasons, resulting in increasing overdues year after year The mounting overdues disrupt the flow of credit to the farmers from the cooperatives and adversely affect the capacity of lending institutions to provide adequate and timely credit to agriculture, and thus hampers the pace of economic development. It may be pointed out here that better class of farmers are responsible for a large proportion of the overdues. This is a matter requiring serious attention of all those interested in the progress of the cooperative movement.

Suggestions

Various bodies like the Provincial and Central Banking Committees, the Agricultural Commission and the Reserve Bank of India have made a number of recommendations for removing the defects of the cooperative credit system and for making it more efficient.

1. The PACs should promote the habit of thrift and saving among its members. These cooperatives should mobilise local savings by accepting all kinds of deposits and providing banking facilities. The primary societies are not covered under the Banking Regulation Act, and as such they have to mobilise deposits to strengthen their resources To provide security to deposits, a suitable mechanism should be devised to cover them under the Deposit Insurance Scheme Though there is considerable saving potential in rural areas but rural people do not prefer to deposit in cooperatives due to relatively low rate of interest payable on deposits and also lack of confidence in the primary cooperative institutions The scope for highly profitable private lending adversely affects the cooperative deposits In order to increase the institutional deposits there is need to eliminate private lending by enacting suitable legislation Larger deposits will increase the working capital of the primary agricultural societies to meet the credit needs of rural people.
2. The cooperative credit societies should be run on truly cooperative principles. There is need to take special steps to train cooperative staff properly to meet the new challenges There is need to eliminate vested interests through legislative and other measures. The weaker sections of rural society should be associated with the working of the PACs. The cooperatives have not been allowed to function free of government interventions and interferences Their democratic

(Contd. on cover page 3)

The Media Revolution Its Socio-Economic Impact

K.G. Joglekar

THE Indo-U.S. Subcommission on Education and Culture and the Press Information Bureau organised a two-day seminar in October on the new mass communications environment. Experts of the print and electronic media from India and the United States discussed the media scene as it is likely to emerge by the turn of the century The three sessions of the seminar were devoted to the format of the newspaper of the future, forms of electronically delivered print media, uses of media in developing countries, the question of regulation and trends in investigative journalism, self regulation and ethics

If the 19th century heralded the Industrial Revolution in the world, the 20th century may well be called the century of the Information Revolution Electronics have helped develop modern techonology of communication and also the methods of processing it The end product has become unbelievably sophisticated. It is now possible for even comparatively small newspapers in a developing country like India to bring out multiple editions from several places by the use of computers, fax machines, off-set printing and other modern systems. The face of the newspapers has changed beyond recognition.

The change has been even greater in the electronic media. The world is now linked together by an electronics network Satellites carry news, data and other information anywhere at the speed of light They have made political borders and governmental regulation on the dissemination of news meaningless Radio and much more so television programmes carried by the cable networks tell the people what their governments may want to hide.

The American participants in the seminar presented a tantalising picture of things to come It will be possible for a senior executive to see on the display panel of his small computor items of special interest indicated by him from a hundred newspapers Items which would be of use later could be saved in the computer's memory. News about politics, economics, science, technology, sports and natural disasters can be seen on the screen at the flick of a button All this, we were told, may be possible in the next twenty years The seminar did not touch and possibly could not touch in two days, the impact that the information revolution was likely to have on developing countries like India. The impact on women and children, on the family system prevalent in developing countries of Asia and Africa, and on their schemes for spread of education were touched only in passing.

But it is precisely these areas that the question becomes relevent to India and other developing countries. One of the American participants told me that on an average every child in his country watched television for six and a half hours every day. In India, the figure is still not that high but is steadily growing. In the posh colonies of the cities, there is a mushroom growth of video parlours and libraries Children who used to play in the evenings now prefer to watch television. A school teacher in one of the jhuggi colonies of Delhi told me that children frequently absent themselves from school because they want to see the afternoon movie shown by Doordarshan. Reading of books has already declined among the younger generation in recent years and is likely to decline even further in the years to come It may be all right in highly developed societies of Europe and America for the youth to see more and more television programmes but can developing countries like India afford that the citizens of tomorrow should waste so much time on entertainment at the cost of more serious pursuits? Letters have already appeared in newspapers of the risk to the eyes and the nervous system due to prolonged viewing of television In one school of Delhi at least the number of students going to the clinic for treatment has doubled since Doordarshan began screening films in the afternoon.

Two Questions

American participants and Indian executives of international television networks were ecstatic while speaking about the immense opportunities that world-wide communication presents. The world has been turned into a global village, they contended. Their emphasis was on the facilities available. The question of content and impact was largely ignored. But two questions come to

mind. Two thousand and five hundred years ago, Gautam Buddha was able to spread his message of peace without the use of any of the modern means of communication just by word of mouth. Adi Shankaracharya, Ramanujacharya, Nanak Dev and other spiritual leaders neither had the newspaper, nor books, radio and television to convey what they preached. Why is it that today when we have ultra-modern means of communication there is increasing strife and discord in the world? Is one to conclude that greater communication does not necessarily mean greater understanding? Or does the fault lie with the way in which these means are used? Is it that we are commiting the mistake of equating information with knowledge and knowledge with wisdom?

The second question which arises is about the cost. Tantalising as it appears, the prospect of an executive asking his computer to collect for him items of interest to him from a hundred newspapers, display them on the screen and store what he wants, would remain beyond the reach of even the well-to-do in developing countries like India. Large sections of society, and to be honest, preponderently large sections, would still depend on the daily newspapers and the public service broadcasts and telecasts provided by All India Radio and Doordarshan and their counterparts in other countries. In times to come society would be sharply divided between the haves and have-nots in information. One section would have access to all avilable information from diverse sources while the other section, which will be in vast majority, would stand on the periphery of information. This will not only lead to discord but also give rise to rumours. How often have we heard a rumour being floated in the name of BBC when BBC had never broadcast the news?

The suggestion that the globalisation of the media may result in a cultural invasion from the sky was raised at the seminar. The Americans and Indian executives of multi-national networks tried to pooh-pooh the threat by arguing that there would be so much information coming in from diverse sources that no one network, much less a single country, would be able to exploit the facility for its own ends. In his address, Mr Ram Niwas Mirdha, M.P., said that India had faced many invasions in the past and had repelled the attacks. He, therefore, saw no reason to be afraid on this account. But the attack this time is much more severe and subtle. The use that the United States made of television during the Gulf war in 1990 makes one believe that in any future crisis, the United States and the multi-national media organisations would use the global media for their own ends. During the war a picture was shown on television of Iraqi soldiers disconnecting the oxygen tubes from Kuwaiti children kept in incubators. But after the war was over it came out that that was a fake picture and the entire exercise was a part of propaganda. That single picture was etched on the minds of the viewers and did more damage to the Iraqis than a hundred despatches.

Impact

By its immediacy and its reach television has a tremendous impact. A newspaper correspondent has far more time than a television cameraman or even a radio correspondent to think, before filing his story. The news appears the next day. And then the circulation of a newspaper is restricted by geography. As against this a television or radio newscast is compiled in a hurry, edited in haste and is immediately broadcast or telecast. It covers thousands of miles, transcending political boundaries and even continents. In a developed industrialised society people think as individuals and rarely react as a community or a mob. But in a developing country the reaction of the people can be swift and devastating. A picture has no barriers of language and may start a chain reaction of violent action and reaction.

This, therefore, raises the question of discretion on the part of the originators and if possible regulation. An American participant glibly observed that when he wrote a news story he had no time to think of the impact that it was likely to have on viewers in far off countries. He only thought of his duty as an independent journalist wedded to truth. He thus indirectly ruled out the question of self-regulation by the media. Regulation, much less control, by Government is anathema in a democratic society. Who then is responsible for the violence that a television programme might generate? Does one accept that a man whose house is burnt and his relatives killed pays a legitimate price for the freedom of the journalist and the globalisation of the media? Will he accept such a premise? And should a Government whose responsibility it is to maintain peace within its borders abrogate this responsibility in the name of globalisation?

It is too late to put the clock back. It is also impossible to check telecasts beamed world-wide by satellite. Satellite television is still new to India. But it will soon spread and spread fast. A certain degree of discretion is necessary on the part of the international organisations to see that they take into account the impact and the results that a hasty programme may have. Power brings with it responsibility. And if the international media networks reap the advantage and the profits that globalisation brings they cannot shirk the responsibilities that go with it. ❐

The author is a noted Journalist

INDEX OF ARTICLES PUBLISHED IN 1993

Book Review

ECOLOGY, DEVELOPMENT AND POPULATION PROBLEM: Edited by K. Mahadevan, Chi-Hsien Tuan and V. Balakrishnan Nair; B.R. Publishing Corporation, Delhi (1992), pages 458, Price Rs. 480.

Till recently the economic development programmes had not emphasised population regulation and protection of environment. As a result, excessive growth of urbanisation at the neglect of balanced development of rural areas continued unabated The need to maintain harmonious linkage between ecology, development and regulation of population growth did not influence the decision-making process of most policy makers or development administrators The book under review attempts to integrate the issue of economic development with social, demographic and ecological issues

The book, which is a collection of articles, includes country studies on ecology and development in China and Austriala besides providing an indepth analysis of the situation in India As regards India, detailed scenarios are presented with respect to the States of West Bengal, Bihar, Kerala, Uttar Pradesh Tamil Nadu, Mahahrashtra, Madhya Pradesh, Orissa, Andhra Pradesh, Karnataka, Himachal Pradesh and Goa

In his article, Dr M S Swaminathan, among other things, highlights the aspect of diversity in the India development scenario. When you compare literacy in Kerala with that in Bihar, you are in fact comparing two extremely contrasting situations. The same would be found true about the comparison of agriculture in Arunachal Pradesh and Punjab. While in Arunachal Pradesh, one comes across the shifting agriculture practised thousands of years ago, Punjab will seem to distinguish in most modern agricultural practices In every field of development endeavour, the amplitude of variability found within India is very great

The element of diversity is also visible when one compares the status of women in Kerala and Uttar Pradesh as outlined in Mahadevan's article The matrilineal cultural heritage, impact of modernisation through migration, creation of educational facilities on a competitive basis by voluntary agencies, establishment of population with outside traders and foreigners, continuous exposure to the outside world, the enlightened policies of the past and present rulers, all have made the ecology of Kerala conducive to the rapid emancipation of women

The situation in Uttar Pradesh presents a contrast Obsession with traditional culture, practice of early marriage, conspicuous isolation of women behind the veils, excessive value attached to sons, coupled with subordination of girls, lack of infrastructural facilities like schools, vehicles, etc in far flung areas of the State and lack of dynamism and commitment on the political and administrative front, have made the women of Uttar Pradesh perpetually and extensively backward, points out K. Mahadevan.

The book notes that social dimensions where Kerala emerged as the most progressive State are male and female literacy, occupational mobility, employment of women, narrowing down of differencess between rural and urban areas, negligible child labour activities, extensive utilization of modern health delivery system, longest life span, lowest infant mortality rate and small family norm. As limitation of the Kerala model, it is mentioned that a quarter of the population still remains below the poverty line besides poor industrialization and productivity in the State

The authors fail to highlight the fact that Kerala suffers from the highest level of unemployment among all States in India The book also fails to highlight the fact that while population growth rate has considerably reduced in Kerala, the State had experienced considerably higher population growth rates during the early decades of this century as compared to the rest of the country. This is due to fact that demographic transition occured earlier in the State of Kerala due to which the population explosion occured earlier in the State and the growth rate is also declining earlier there

The book is noticeable and timely and its importance lies in emphasising the relatively neglected aspects of the socio-economic development process in the country and abroad

P V Rajeev

IN THE NAME OF THE URBAN POOR: Access To Basic Amenities– By: Amitabh Kundu; Sage Publications, M-32, Greater Kailash Market, Part I, New Delhi-110 048; pp 299; Price Rs 285.

At a time when the country is in the midst of implementing structural adjustment programme in which free market forces are being allowed to have a greater say in the economy, the book under review by a highly acclaimed academician has come not a day too soon Analysing the access of the urban poor to five basic amenities such as housing, water supply, sanitation, health care and the public distribution system (PDS), the author has come to the inescapable conclusion that the percentage of population without these amenities has not diminished over the past ten years.

Mr. Kundu affirms that bureaucratic

delays, mismanagement, deficiencies in the distributional network are often noted as factors responsible for the benefits not reaching the targeted sections of the population However, what is disquieting is, that the demands for cost recovery, hike in user charges being made on the organisation due to the resource crunch in the economy, might lead to the adoption of solutions that would price the poor out of the delivery systems That perhaps is the right warning that the Government should gear itself to address even as it is engrossed in the nitty-gritty of economic liberalisation Using published data from the population censuses and the national sample survey, unpublished data from various government departments and primary data from field surveys, Mr Kundu contends that the poor have been able to get only a small share of these amenities, while the non-poor getting the larger share in per capita terms Besides, the poor have access to only the lower order amenities, while the better quality and higher order services are cornered by those inthe middle and upper consumption brackets.

Some of the suggestions mooted by the author for targeting the amenities to urban poor include construction of one-room tenements with common space and shared water supply and toilet facilities, creation of special slum wings within the municipal bodies in cities that have large slum populations, prescription of stipulations and norms for the allotment of free ward facilities to the deserving sections of the population and increased coverage of the PDS through yearly drives to identify those households below the poverty line without ration cards

Undoubtedly these suggestions are positive and could go a long way in bringing a shaft of comfort to that sections of urban population which has been fleeced on several fronts

A particularly noteworthy aspect of the book is that it admits the fact that people continue to remain below the normative level of nutrition for whatever reasons-including distortions of consumer preferences through advertisements, imperfect knowledge But this is a cause for concern, he says adding that it seems reasonable to take the caloric norm determined by the Nutrition Expert Group as the basis until an alternate estimate is made available

The book under review, made out of original field surveys and studies, is an exemplary exercise at a time when the lot of the urban poor seems to be out of focus and concern of the policy makers and administrators Left ignored, this problem is bound to detonate with a defeaning noise and it is time the Government seizes the opportunity to swing into action on the lines suggested by the author for the amelioration of the urban poor lot ❐

G Srinivasan

functioning has been throttled in many States It is, therefore, essential to restore autonomy to them by withdrawing restrictive provisions of law

3 Through the Policy adopted for the reorganisation of PACs into strong and viable units their number has decreased while their membership and economic strength has increased but despite considerable efforts their quality of operation has not improved to the desired extent In view of the growing need for credit for diversified developmental and productive activities in the rural areas CRAFICARD suggested that "in planning the future of reorganised societies, the aim should be to transform them into a single contact point in the village for all types of credit and not merely for agriculture in the narrow sense In other words, they should also have the capacity to serve other rural producers such as artisans craftsmen and agricultural labourers in respect of their economic activities They must offer a package of services to the clientele, for example, input supplies and marketing help They have to be servicing agencies either by directly undertaking the services required by the producers or by forging effective links with other agencies such as marketing societies and fertilizer suppliers who render such services" It has also been stressed that, "these societies should transform themselves into a single contact point to provide a package of integrated services to the members" There would be no danger for the viability of PACs if they fully tap the available potential for farm credit business

It also needs emphasis that the present predominance in favour of agriculturists and agricultural credit has to be replaced by a base level system which will cater to the requirements of all persons within its area of operation

4 All possible efforts should be made by the PACs in favour of the more vulnerable sections of the society in meeting their requirements This is possible only when the weaker sections have predominance on managing commitee of PACs and by fixing certain portion of credit for these sections Only then these societies may be called a small man's society ❐

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